

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 3,0 a
2. Edition

En

PES 3 A 90 D 10/3 RS 2640
Komb.-Nr. 0 400 863 006

RSV 325-1150 A 8 B 2157 L

superseded 9.82

company KHD

engine: F 3 L 913 G

37 kW (50 PS)
bei 2300 min⁻¹

1 - 3 - 2 je 120° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	10,8+0,1	6,9 - 7,0	0,3(0,45)			
325	8,9-9,1	1,6 - 2,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca.17	325	8,5	1150	10,8+0,1
	X = 6,75						100	min.19,0	500	11,1+0,1
							325	8,9-9,1	1055	10,9+0,2
ca.52	9,8	1190-1200					470-530	2,0		
⑤	4,0	1270-1300								
	1450	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min				RPM RW			
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
1150	68,5-69,5 (66,5-71,5)	1190-1200*	300	60,0-62,0 (58,0-64,0)	100	11,1-11,3		-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.33

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 EIC 2,9 c 1

2. Edition

En

PES 3 A 90 D 320 RS 2626 RSV 300-1050 A 1 B 2171 R

1 - 3 - 2 je $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Komb.-Nr. 0 400 873 030

supersedes 9.82

company: Eicher

engine: EDL 3-1

40 kW (54 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$
(2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,4+0,1	7,3 - 7,4	0,2(0,45)			
300	9,7-9,9	3,3 - 3,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 22	300	9,3	1050	11,4+0,1
	x = 5,0						100	min. 19,5	500	12,0+0,1
							300	9,7-9,9	890	11,7+0,2
ca. 59	10,4	1090-1100					445-505	= 2,0		
⑤	4,0	1145-1175								
	1310	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1050	73,0-74,0 (71,0-76,0)	1090-1100*	500	66,5-69,5 (64,5-71,5)	100	78,0-88,0 bei 14,0 - 14,6 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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BOSCH

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001 400 873 030

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 c

2. Edition

En

PES 4 A 90 D 320 RS 2634 RSV 300-1025 A 1 B 2153 R

superseded 0,82

1 - 2 - 4 - 3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

company: Eicher

engine: EDL 4-2

Komb.-Nr. 0 400 874 233

65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$
(2,15-2,35) mm (from BDC) RW=9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1025	12,6+0,1	8,1 - 8,2	0,2(0,45)			
300	10,9+0,2	4,4 - 4,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 16	300	10,5	1025	12,6+0,1
	x = 2,0								500	13,2+0,1
ca. 46	11,6	1065-1075					300	10,9-11,1	880	12,9+0,2
⑤	4,0	1095-1125					395-455=2,0			
	1255	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1025	81,0-82,0 (79,0-84,0)	1065-1075*	750	83,5-86,5 (81,5-88,5)	100	101,0-111,0 (98,0-114,0)	-	-	
			500	77,0-79,0 (75,0-81,0)		= 17,7-18,3 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.33

①

Test Specifications

Fuel Injection Pumps ①

and Governors

WPP 001/4 MB 3,8 g 2

3. Edition

Ea

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2294

RQV 300-1425 AB 740 L

Komb.-Nr. 0 400 844 047

supersedes 82

company Daimler-Benz

engine OM 314

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25
(2,1 - 2,3)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,7-9,8	6,3 - 6,4	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1470	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	250	0,7-1,0
ca. 61	8,7 4,0 1700	1455-1465 1550-1580 0 - 1,0				370-520 3a	300	7,5-7,7	640 1030 1425	3,2-3,6 5,5-5,7 8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	mm 7	rev/min 8	mm 9
1400	62,5 - 63,5 (60,5 - 65,5)	1455-1465 *	-	-	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 d

2. Edition

En

PES 6 A 90 D 410 RS 2633 RQV 300-1500 AB 1165 L
Komb.-Nr. 0 400 846 494

superseded by 82
company: Fiat
engine: 8060.04.662

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2 - 2,3}
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,1-9,2	5,3 - 5,4	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1530	15,2-17,8	-	-	-	ca. 17	100	min. 9,7	250	1,1-1,3
ca. 59	8,1 4,0 1800	1540-1550 1645-1675 0 - 1,0				330-430	300 600-660 = 2,0 800 max. 1,0	8,2-8,4	670 1080 1500	4,5-4,8 6,0-6,2 8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	52,5-53,5 (50,5-55,5)	1540-1550*	500	38,5-40,5 (36,5-42,5)	100	68,0-78,0	1500 500 930 1130	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.33

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 d 1

2. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1026 DL
Komb.-Nr. 0 400 649 201
1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes 11.82

company: KHD

engine: F 10 L 413 F
235 kW (320 PS)
bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
($1,95-2,15$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,8-7,0	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1295	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	250	0,5-0,8
ca. 66	9,3	1290-1300					300	5,9-6,1	580	2,8-3,1
	4,0	1340-1370					550-680	2,0	920	4,6-4,9
	1500	0-1,0				330-400	850	max. 1,0	1250	7,6

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,0-93,0 (89,0-95,0)	1290-1300*	1000	90,5-93,5 (88,5-95,5)	100	14,3-15,3 mm RW	1250	10,3+0,1
			700	91,0-94,0 (89,0-96,0)			1000	10,3+0,2
							700	10,7+0,1
							400	10,7+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.33

A6

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BOSCH

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Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 90 D 410 RS 2124

RQ 300/1250 AB 812 DL

Komb.-Nr. 0 400 646 199

supersedes 3.83

company: Daimler-Benz

engine: OM 360

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,2+0,1	8,6 - 8,7	0,3 (0,45)			
300	6,3-6,5	1,2 - 1,8	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PAG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	9,2 4,0	1295-1310 1345-1375	300	5,6	100 300 360-400 = 2,0 500	min.7,9 5,5-5,7 max.1,0	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	Control rod travel mm	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1250	86,0-87,0 (84,0-89,0)	-		800	80,0-83,0 (78,0-85,0)	100	19,0-21,0 mm RW

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

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WPP 001/4 MB 5,7 y

2. Edition

En

PES 6 A 90 D 410 RS 2293 RQ 900 AB 1079 L

Komb.-Nr. 0 400 846 446

supersedes 10.82

company: Daimler-Benz

engine: OM 352 A

82 kW (111 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,8+0,1	6,9 - 7,0	0,3(0,45)			
300	5,9-6,1	0,9 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	9,8 4,0 1000	900-905 941-956 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7	Control rod travel mm
850	69,0-70,0 (67,0-72,0)	-	-	-	100	73,0-83,0 bei 14,6-15,0 mm RW	

Checking values in brackets

6.33

A8

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BOSCH

Geschäftsbereich KM-Kundendienst, Kfz-Ausstattung
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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 9,6 i

2. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 LS 2621 RQ 350/1250 AB 1148 L

1 - 6 - 5 - 4 - 3 - 2

0 -75 -120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 400 646 267

superseded 9.82

company: KHD

engine: F6L413F

125 kW (170 PS)
bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 2,0 - 2,1 \\ (1,95 - 2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,6-9,7	8,3 - 8,5	0,3 (0,6)			
350	6,9-7,1	1,6 - 2,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		①		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11		Control rod travel mm 12	
550	19,2-20,8			550	20,0	8,6 4,0	1295-1310 1325-1355	350	7,0	100 350 410-450 450	min. 8,5 6,9-7,1 =2,0 max. 1,0	1250	9,6- 9,7		
VH= 46°												550	10,1-10,2		
												910	9,9-10,1		
												990	9,6- 9,9		

Torque-control travel
on flyweight assembly dimension a = 0,25 mmSpeed regulation: At 1295-1310 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		③b		Starting fuel delivery idle speed rev/min 6		⑥	
	cm ³ /-1000 strokes 2								cm ³ /-1000 strokes 5				cm ³ /1000 strokes / mm 7		
1250	82,5 - 84,5 (80,5 - 86,5)			600				800	85,0 - 88,0 (83,0 - 90,0)			100	119,0 - 129,0		
								1000	84,0-87,0 (82,0-89,0)						

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

40

1A

WPP 001/4 MB 3,8 n5

2. Edition

En

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2570

RSV 350-1200 A 2 B 1139 L

supersedes 10.80

Komb.-Nr. 0 400 874 227

RSV 350-1200 A 2 B 1139-1L

company Daimler-Benz

1 - 3 - 4 - 2 je $90^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

engine OM 314

48 kW (65 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,20-2,40)

Port closing at prestroke

2,25-2,35

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,4+0,1	5,3 - 5,4	0,3(0,25)			
350	8,9-9,1	0,9 - 1,3	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0					350	8,5	1200	10,4-10,5
	X = 3,5						100	min. 19,0	600	11,7-11,9
							350	8,9-9,1	1050	10,6-10,9
							540-600	=2,0		
ca. 46	1240-1250 = 9,4									
2a	1310-1340 = 4,0									
	1450 = 0,3 - 1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a idle stop	
Test oil temp 40°C (104°F)		Note: changed to)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7 mm RW	8	9	
1200	52,5 - 53,5 (50,5 - 55,5)	1240-1250*	500	48,0 - 50,0 (45,5 - 52,5)	100	78,0-88,0 (75,0-91,0) =17,0-17,4 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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A10

A 10

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 7,4 b

2. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2614

RSV 325-1100 A 1 B 2111 L

superseded 1.82

Komb.-Nr. 0 400 876 303

company Schlüter

engine SDMT 110 W 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95)
1,80-1,90

mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,6+0,1	10,8 - 11,0	0,3(0,6)			
325	7,9-8,1	1,2 - 1,8	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 23	325	7,5	1100	12,6-12,7
	X = 5,0						100	min. 19,5	785	12,7-12,9
ca. 59	1140-1150 = 11,6						325	7,4-7,6	500	13,0-13,1
2a	1220-1250 = 4,0						550-610	= 2,0		
	1385 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	108,0 - 110,0 (106,0 - 112,0)	1140-1150*	500	102,5 - 105,5 (100,5 - 107,5)	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than not

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5.33

A11

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 VAL 4,4 a

2. Edition

En

PES 4 A 95 D 320 RS 2654
Komb.-Nr. 0 400 874 236

RSV 325-1050 A 2 B 2178 R

supersedes 11.82

company Valmet

engine 411 DS 8

1-2-4-3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 mm (from BDC)
(2,45-2,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,6+0,1	8,5-8,7	0,3 (0,6)			
325	7,2-7,4	1,2-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 31	325	6,3	1050	10,6-10,7
	x = 6,5						100	min.19,0	500	11,2-11,3
ca.53	9,6	1090-1100					325	6,7-6,9	900	10,8-11,1
②a	4,0	1185-1215					485-545	5=2,0		
	1390	0,3-1,7					775	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	84,5-86,5 (82,5-88,5)	1090-1100*		500	79,5-82,5 (77,5-84,5)	100	156,5-166,5 = 19,5 - 21,0 mm RW	-	-
				750	39,5-91,5 (37,5-93,5)				

Checking values in brackets

* 1 mm less control rod travel than cor. 2

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A12

A12

5.33

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 i

4. Edition

En

PE 6 P 110 A 720 RS 3034

RQV 200-1200 PA 554

Komb.-Nr. 0 401 846 733

supersedes 83

company Scania

engine: DS 805

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4

(3,25-3,45)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3+0,1	12,1-12,3	0,5(0,8)			2,5 ⁺ -0,1
225	5,3-5,5	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca.16	100 225	min.6,8 5,3-5,5	150 500 850 1200	0,5-0,8 3,8-4,5 5,9-6,1 8,4
ca. 64	11,3 4,0 1550	1240-1250 1385-1415 0-1,0					410-470 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 121,0-123,0 (119,0-125,0)	1240-1250*	LDA 1200	0,9 bar 127,5-130,5 (125,0-133,0)	100	190,0-240,0 =20,0-21,0 mm RW	-	-
			LDA 500	0 bar 85,0-89,0 (83,0-91,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing
increasing pressure - in bar gauge pressure

SCA 8,0 i -2-

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3034 +RQV.. PA 554	0,90	0 0,33 0,22	12,3-12,4 10,9-11,0 12,0-12,1 11,2-11,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

 WPP 001/4 SCA 11,0 r6
2. Edition

En

 PE 6 P 110 A 720 RS 3040 ROV 200-1000 PA 555-1
Komb.-Nr. 0 401 846 763

 superseded by 83
company Scania
engine DS 11

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,6+0,	16,8-17,0	0,6 (0,8)			3,3 [±] 0,1 (3,0-3,5)
225	4,4-4,6	1,7-2,1	0,2(0,4)			

 Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 60	12,6 4,0 1300	1040-1050 1155-1185 0 -1,0					225	4,4-4,6	430	3,1-3,6
							310-370	2,0	720	5,1-5,4
									1000	7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 168,0-170,0 (166,0-172,0)	1040-1050*	LDA 1000	0,9 bar 170,5-173,5 (168,0-176,0)	100	240,0-290,0 =RW 20,0-21,0 mm	-	-
			LDA 500	0 bar 133,0-137,0 (131,0-139,0)				

Checking values in brackets

 * 1 mm less control rod travel than col. 2
6.83

A15

A15

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

-2-

SCA 11,0 r 6

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P.. RS 3040 + ROV.. PA 555-1	0,42	0,90 0 0,29	13,2-13,3 13,6-13,7 12,0-12,1 12,3-12,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,0c

12. Edition

En

Testoil-ISO 4113

PE 8 P 110 A 920/4 LS 3020 ROV 250 - 1100 PA 306 R
Komb.-Nr. 0 401 848 701

superseded 4.81
company: Scania
engine: DS 1402

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,30-3,40$ mm (from BDC) = RW 9,0 - 12,0 mm
(3,25-3,45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,5 \pm 0,1	16,2 - 16,4	0,6(0,8)			3,3 \pm 0,1
225	4,4-4,6	1,5- 1,9	0,2(0,4)			(max. 3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8				ca. 10	100	min. 5,9	225	1,3-1,4
ca. 60	12,5 4,0 1400	1140-1150 1270-1300 0 - 1,0					250 350-410=2,0	4,4-4,6	365	2,5-3,1
						3a			1150	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b 4a	Fuel delivery characteristics high idle speed ⑤b ⑤a	Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 162,0-164,0 (160,0-166,0)	1140-1150 *	LDA 600	0,7 bar 165,5-168,5 (163,0-171,0)	100	240,0-290,0		
			LDA 500	0 bar 127,0-131,0 (125,0-133,0)	225	15,0-19,0 Dispersion max. 2(4)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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D. Adjustment Test for Manifold Pressure Compensator

SCA 14,0c

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 8 P..LS 3020 + RQV..PA 306 R	0,70	0 0,45 0,32	13,5 - 13,6 12,1 - 12,2 13,1 - 13,2 12,2 - 12,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 s
3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3065 RQV 250-1100 PA468R
Komb.-Nr. 0 401 846 721superseded 10.81
company: Scania
engine: D 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,30-3,40}
(3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,5+0,1	13,5 - 13,7	0,5(0,8)			2,5+0,1 (max. 2,2-2,9)
225	6,2-6,4	1,5 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 10	100	min. 7,3	200	0,3-1,3
ca. 61	11,5	1140-1150					225	5,8-6,0	700	4,8-5,2
	4,0	1250-1280					345-405	2,0	1120	8,2
	1400	0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	135,0-137,0 (133,0-139,0)	1140-1150*	600	132,5-135,5 (130,0-138,0)	100 225	190,0-240,0 15 - 19		

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 720 RS3040

RQ 250/1100 PA411R

Komb.-Nr. 0 401 846 717

supersedes 1.83

company: Scania

engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,30-3,40$
 $(3,25-3,45)$ mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	15,7 - 15,9	0,6(0,8)			2,5+0,1** (max. 2,2-2,9)
225	4,4-4,6	1,7 - 2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

 ** In the case of greater dispersion after the delivery-valve spring
 pre-tension accordingly.

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6		Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10		Control rod travel mm 12	
700	15,6-16,4	700	16,0	12,0 4,0 1350	1145-1160 1230-1260 0 - 1,0	250	4,5	100 250 300-360=2,0	min. 5,9 4,4-4,6	-	-

Torque-control travel

on flyweight assembly dimension a = - mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	Control rod travel
LDA 1100	0,9 bar 157,0 - 159,0 (155,0 - 161,0)			LDA 600	0,9 bar 161,5 - 164,5 (159,0 - 167,0)	100	240,0 - 290,0
				LDA 500	0 bar 126,0 - 130,0 (124,0 - 132,0)	225	17 - 21 **

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

SCA11,0r1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3040 +RQ..PA 411 R	0,37	0,90 0 0,25	12,7-12,8 13,0-13,1 11,7-11,8 11,8-12,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 2

2. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 352

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 8.80

KHD

company BA 16 M 816

engine Komb.-Nr. 0 401 878 104

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) = RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9 \pm 0,1	29,5-29,9 (29,2-30,2)	0,5 (0,9)			
300	6,0-6,2	2,0-2,6	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067.

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0 x = 1,75	-	-	-	ca. 21	300	5,6	1000	14,9-15,0
ca. 65	13,9	1040-1050					300	6,0-6,2	280	16,2-16,8
2a	4,0	1065-1095					325-385	2,0	400	14,9-15,0
	1190	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2			4	5	6	7	8	9
LDA	0,7 bar	1040-1050*	-	-	-	100	19,5-21,0 mm RW	-	-
Carry out adjustment		on engine							

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.33

D. Adjustment Test for Manifold Pressure Compensator

KHD 40,5 c 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..RS 293 +RSUV..POA 352	Carry out adjustment on engine.		

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 VAL 3,3a
3. Edition

En

PES3A95D 320 RS 2655 RSV 325-1150 A 2 B 2178-1R
Komb.-Nr. 0 400 873 032
1 - 2 - 3 je 120 ° ± 0,5 ° (+0,75 °)

supersedes 3.83
company Valmet
engine 311 DS 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,65) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	10,0+0,1	8,3 - 8,5	0,3 (0,6)			
325	7,0-7,2	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0 X = 5,0	-	-	-	ca. 25	325	6,7	1150	10,0-10,1
							100	min. 19,5	500	11,3-11,4
							325	7,1-7,3	915	10,6-10,8
							460-520	= 2,0		
ca. 51	9,0	1190-1200								
2a	4,0	1240-1270								
	1420	0,3 -1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle		Control rod travel	
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2			4	5	6	7	8	9
1150	82,5-84,5 (80,5-86,5)	1190-1200*		500	83,0-86,0 (81,0-88,0)	100	171,0 - 181,0 = 19,5-21,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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①

Test Specifications

Fuel Injection Pumps ①

and Governors

WPP 001/4 IHC 7,61

1. Edition

En

PES 6 MW 100/320 RS 1108
RQV 350-1300 MW 45

0 403 446 140

1 688 901 016
207 + 3 bar

supersedes

company: IHC

engine: DT 4668
143,5 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10
(2,95-3,15)

mm (from BDC) $RW = 9-12$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12,6+0,1	10,4-10,6	0,35(0,6)			
350	6,5-6,6	1,6-2,0	0,35(0,55)			
1300	12,6+0,1		0,65(0,7)			
500	9,8+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	8,0 0-1	1440-1505 1550	-	-	-	ca. 14	100 350	min. 9,0 6,5-6,6		
ca. 61,5	11,6 4,0	1355-1375 1477-1487				380-700				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed (2b) limitation intermediate speed		Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point		Torque-control (5)	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 900	0,9 bar 104,0-106,0 (102,0-108,0)	1355-1375*	LDA 1300	0,9 bar 109,5-113,5 (107,5-115,5)	100	19-21 mm RW 140-180 (137-183)			
			LDA 500	0 bar 54,0-56,0 (52,0-58,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

B1

B1

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4.83

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ **500** rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1108 + MW 45	0,9		12,6 - 12,7
		0	9,8 - 9,9
		0,19	10,3 - 10,4
		0,67	12,1 - 12,2

Notes:

(1) when $n =$ rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 i 1

2. Edition

En

PE 6 P 110 A 720 RS 3034 Z RQV 200-1200 PA 554

Komb.-Nr. 0 401 846 770

supersede 2.83

company: Saab Scania

engine: DS8 05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3 - 3,4
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,3+0,1	10,1 - 10,3	0,5(0,8)			25 ± 0,1
225	5,3-5,5	1,5 - 1,9	0,2(0,4)			2,2 - 2,9

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1220	15,2-17,8	-	-	-	ca. 16	100	min. 6,8	150	0 - 1,0
ca. 61	10,3 4,0 1500	1240-1250 1360-1390 0 - 1,0					225	5,3- 5,5	500	3,4-3,9
							410-470 = 2,0		850	3,4-5,8
									200	7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 101,0-103,0 (99,0-105,0)	1240-1250*	LDA 1200	0,9 bar 111,5-114,5 (109,0-117,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 85,0-89,0 (83,0-91,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

B3

B3

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D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 i 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 3034 Z + RQV..PA 554	0,90	0 0,21	11,3 - 11,4 10,9 - 11,0 11,0 - 11,2

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 10

1. Edition

En

PES 2 A 80 D 310/3 RS 1322 RSV 325-1150 A 8 B 2011-1 L
Komb.-Nr. 0 400 462 054

superseded by
KHD
company F 2 L 912
engine 25 kW bei 2300 min⁻¹
Schlepper D 3607-
S 33

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,9+0,1	5,5-5,6	0,25(0,4)			
325	8,9-9,1	1,2-1,8	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	325	8,5	1150	10,9-11,0
	x = 6,0						100	min.19,5	500	11,8-11,9
							325	8,9-9,1	1010	11,3-11,5
ca. 60	9,9	1190-1200					690-750	=2,0		
2a	4,0	1320-1350								
	1480	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
1150	54,5-55,5 (53,0-57,0)	1190-1200*	750	54,0-56,0 (52,0-58,0)	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

B5

85

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 c 1

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1150 AB 1055 DL

Komb.-Nr. 0 400 649 210

1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 - 27- 72- 99-144-171-216-243-288-315⁰ ± 0,5⁰(+0,75⁰)

supersedes

company: KHD

engine: F 10 L 413 F

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1150	9,3-9,4	8,4 - 8,6	0,3(0,6)			
300	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	325	1,5-1,8
ca. 64	8,3	1190-1200					300	5,9-6,1	700	3,7-4,0
	4,0	1230-1260							1100	7,2-7,4
	1350	0 - 1,0				320-425			1250	9,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	cm ³ /1000 strokes 4	rev/min 5	cm ³ /1000 strokes 6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
1150	83,5-85,5 (81,5-87,5)	1190-1200*	850	92,0-95,0 (90,0-97,0)	100	116,5-126,5 (113,5-129,5)		1150	9,3-9,4
								500	10,3+0,1
								950	10,0+0,2
								1050	9,4-9,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1e1

4. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2471 RSV 325-1150A 8 B 674 DL
Komb.-Nr. 0 400 876 275

supersedes 9.82

company: KHD

engine: BF 6 L 913 C

132 kW

bei 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,85-2,05)
Port closing at prestroke 1,90-2,00 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	10,8 - 11,0	0,3(0,6)			
325	7,2-7,4	1,6 - 2,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 15	325	6,8	500	11,8+0,1
	x =	4,75					100	min. 19		
⑤ ca. 55	1190-1200=10,8						325	7,2-7,4		
	1235-1265= 4,0						615-675=2,0			
	1400=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*	LDA 850	0,7 bar 102,5-105,5 (100,5-107,5) LDA 0 bar 62,0-64,0 (59,5-66,5)	100	120,0-130,0 = 15,9 - 16,4mmRW	325	6,8	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
2471 + 674 DL	0,7 bar	0 0,27 0,1	11,8 - 11,9 10,6 - 10,7 11,6 - 11,7 10,8 - 11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 e
6. Edition

En

PES 6 A 95 D 410 RS 2471 RSV 325-1150 A 8 B 707 DL

Komb.-Nr. 0 400 876 274

supersede 11.82
company: KHD
engine: BF6L 913 C
132 kW
Einbau 2300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 - 2,0$
(1,85-2,05) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,8±0,1	10,8-11,0	0,3(0,6)			
325	7,1-7,3	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 21	325	6,7	1150	11,8-11,9
	x = 4,75						100	min. 19,0	500	11,8-12,0
ca. 55	10,8	1190-1200					325	7,1-7,3		
2a	4,0	1235-1265					590-650	= 2,0		
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
LDA 150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*		LDA 850	0,7 bar 102,5-105,5 (100,0-108,0)	100	125,0-135,0 (122,0-138,0) = 15,5 - 15,8 mmRW	-	-
				LDA 500	0 bar 62,0-64,0 (59,5-66,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

B9

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e

- 2 -

Test at n = 1150 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2471 + RSV..A 8 B707DL	0,70	0,37	11,8-11,9
		0,09	11,5-11,6
		0	10,1-10,3
			9,9-10,1

Notes:

(1) when: n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 i 1

5. Edition

En

PES 6 A 80 D 410/3 RS 2527

RQV 300-1400 AB 951 DL (1-2)

superseded by 82

RS 2348

RQ 300/1400 AB 935 DL (3)

company KHD

RQ 300/1325 AB 935 DL (4,7)

engine: F 6 L 913

RQ 300/1250 AB 935 DL (5-6)

(1-2) 96 kW (130PS) / 2800min⁻¹(3) 96kW (130PS) / 2800min⁻¹(4,7) 92kW (125PS) / 2650min⁻¹(5) 89kW (121PS) / 2500min⁻¹(6) 77kW (105PS) / 2500min⁻¹(8) 85kW (115PS) / 2500min⁻¹

Instructions for items 2 and 5:
page 5.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 - 2,0

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,5+0,1	6,7 - 6,9	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

.. RS 2527

RS 2348 m. RQV..AB 951 (1-2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1470	15,2-17,8	-	-	-	ca. 12	100	min.7,5	250	0,4-1,0
ca. 65	11,0	1440-1450					300	5,9-6,1	630	2,8-3,5
	4,0	1545-1575					530-590=	2,0	1020	4,6-5,0
	1700	0 - 1,0				410-650			1400	7,6

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100	17,3-17,6 mm RW	1400 1150 700	12,0+0,1 12,3+0,3 12,8+0,2	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

BOSCH

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B11

B11

B. Governor Settings

..RS 2527 u. ..RS 2348 m.
RQ 300/1400 AB 935 DL (3)

KHD 1 i 1

-2-

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	11,0	1445-1460	300	8,5	100	min. 10,0	1400	12,0-12,1
VH	ca. 46°			4,0	1540-1570			300	8,4-8,6	950	12,5-12,8
				1700	0 - 1,0			600-640	= 2,0mm	700	13,0-13,2
								750	max. 1,0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1400	69,0 - 70,0 (67,5 - 71,5)	-		700	64,5-66,5 (63,0-68,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
820	19,2-20,8	820	20,0	11,5	1370-1385	300	6,0	100	min. 7,5	1325	12,5-12,6
VH	ca. 46°			4,0	1460-1490			300	5,9-6,1	775	13,6-13,7
				1600	0 - 1,0			500-540	= 2,0	875	13,2-13,4
								700	max. 1,0	1000	12,6-12,9

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1325	68,5-69,5 (67,0-71,0)	700		775	72,5-75,5 (71,0-77,0)	-	-

En Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB935DL (5)

-3-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point	Test specifications			Setting point	Test specifications			Control rod travel	
rev/min	mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 9,5	1250	12,5-12,6
VH	max. 46°			4,0	1370-1400			300	8,4-8,6	910	13,4-13,6
								580-620=2,0		800	13,8-13,9
										1045	12,7-13,0

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1250	66,5 - 67,5 (65,0 - 69,0)	-		800	64,0 - 66,0 (62,5 - 67,5)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB 935 DL (6)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point	Test specifications			Setting point	Test specifications			Control rod travel	
rev/min	mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	10,9	1295-1310	300	8,5	100	min. 10,0	1250	11,9-12,0
VH	ca. 46°			4,0	1360-1390			300	8,4-8,6	950	12,7-12,9
								580-620 = 2,0		800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1250	58,0 - 60,0 (56,5 - 61,5)	-		700	53,5 - 56,5 (52,0 - 54,0)	-	-

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

..RS 2527 m. RQ 300/1250 AB 935 DL (8)

KHD 1 i 1 - 4 :

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	9,5	1295-1310	300	8,5	100	min.9,5	1250	10,5-10,6
VH =	max. 4,6			4,0	1360-1390			300	8,4-8,6	1200	10,7-10,8
								580-620	= 2,0	800	11,4-11,6
										500	11,4-11,6

Torque-control travel on flyweight assembly dimension a = 0,45 mm

Speed regulation At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1250	60,5-62,5 (58,5-64,5)	-		800	58,5-60,5 (57,0-62,0)	-	-
				500	52,0-54,0 (50,5-55,5)		

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7

En Checking values in brackets

Notes:

RS 2348
With item 2 - PES 6 A 80 D 410/3 RS 2527 with RQV 300-1400 AB951DL
and item 6 - PES 6 A 80 D 410/3 RS 2527 with RQ 300/1250 AB935DL
RS 2348

an engine code no. instead of the engine output is sometimes given by the customer on the engine nameplate.

These engine code nos. 1025, 1032, 1034, 1035 and 0708 require a reduced full-load delivery:

n 1250 = 57,5 - 59,5 $\text{cm}^3/1000$ strokes
n 850 = 55,5 - 57,5 $\text{cm}^3/1000$ strokes.

From engine no. 6 216 324 the following applies:

n 1250 = 63,5 - 65,5 $\text{cm}^3/1000$ strokes
n 850 = 60,5 - 62,5 $\text{cm}^3/1000$ strokes.

This must at all costs be taken into account when new adjustments and control measurements are made.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 h

4. Edition

En

PE 6	A 95 D 410 LS2587	RQV 300-1150 AB1088L	(1)
PE 8	A 95 D 410 LS2588	RQV 300-1150 AB1088L	(2)
PE 10	A 95 D 610/4 LS2589	RQV 300-1150 AB1047DL	(3)
PE 12	A 95 D 610 LS2590	RQV 300-1150 AB1047DL	(4)

supersedes 9.82

company KHD

engine F 6 L 413

(1) (102kW-139PS)

(2) F 8 L (136kW-185PS)

(3) F10 L (170kW-231PS)

(4) F12 L (204kW-277PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 1,50-1,60 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1150	9,0-9,2	7,8-8,0	0,3(0,6)			
300	6,2-6,3	1,4-2,0	0,3(0,5)			
800/1000	---	C,4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

(1) 2587 mit 1088L

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	min
1	2	3	4	5	6	7	8	9	10	11
ca.68	1150 1350	15,2-17,8 0-1	-	-	-	ca.11	100 300 610-670 = 2,0	min.7,5 5,9-6,1	300 600 1190	1,2-1,3 3,1-3,4 8,5
ca.64	8,0 4,0	1190-1200 1220-1250				320-400 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	80,5-82,5 (79,0-84,0)	100	119,0-129,0	1150 800 500	9,0-9,1 9,5-9,6 9,5-9,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

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Cam sequence and angular cam spacing

1 - 6 - 5 - 4 - 3 - 2 (1)
0 - 75-120-195-240-315°

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 (2)
0 - 45-90-135-180-225-270-315°

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 (3)
0 - 27 - 72-99-144-171-216-243-288-315°

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 (4)
0 - 15-60-75-120-135-180-195-240-255-300-315°

Tolerance[±] 0,50 ([±]0,75)

B. Governor Settings

(2) 2588 mit 1088L

KHD1h

- 3 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3
- - -	- - -	- - -	-	-	-	-	300	5,9-6,1	600	3,1-3,4
ca. 64	8,0 4,0 1350	1190-1200 1220-1250 0 - 1,0	-	-	-	320-400	610-	670=2,0	1190	8,5

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	77,5 - 79,5 (75,5 - 81,5)	1190-1200*	800	80,5 - 82,5 (78,5 - 84,5)	100	119,0-129,0	1150 800 500	9,0-9,1 9,5-9,6 9,5-9,6

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

(3) 2589 mit 1047 DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3
- - -	- - -	- - -	-	-	-	-	300	6,2-6,3	600	3,1-3,4
ca. 64	8,0 4,0 1350	1190-1200 1230-1260 0 - 1,0	-	-	-	330-410	620-680=2,0	-	1190	8,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	78,5 - 80,5 (76,5 - 82,5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5) = 14,4-14,8 mm RW	1150 500 895 1030	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

(4) 2590 mit 1047DL KHD1h - 4 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 11	100	min. 7,7	300	1,2-1,3
- - - -	- - - -	- - - -					300	6,1-6,3	600	3,1-3,4
ca. 64	8,1 4,0 1350	1190-1200 1225-1255 0 - 1,0				320-425			1190	8,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	78,5 - 80,5 (76,5 - 82,5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100	116,5 - 126,5 (113,5-129,5)	1150 500 900 1030	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3

1. Edition

En

PEŠ 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L
Komb.-Nr. 0 400 836 028

supersedes
KHD
company
BF 6 L 913
engine: 118 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 mm (from BCC)
(2,15-2,35)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mmA 6
1250	12,0+0,1	8,9-9,0	0,3(0,5)			
300	6,9-7,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 13	300	6,9-7,1	325	1,5-1,7
ca. 65	11,0 4,0	1290-1300 1375-1405				355-470			850	4,9-5,1
						③a			1150	7,1-7,3
									1400	9,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 500	0 bar 59,0-61,0 (56,5-63,5)	100	110,0-120,0 (107,0-123,0) =17,1-17,5 mm RW	1250 500 775 1025	12,0+0,1 12,8+0,1 12,5+0,2 12,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0 0,26 0,19	12,8-12,9 10,9-11,1 12,4-12,5 11,9-12,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 6

En

2. Edition

Testoil-ISO 4113

PES 4 A 85 D 410/3 RS 2610 RSV 325-1150 A 8 B 2102 L
 1 - 3 - 4 - 2 je $90^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)
 Komb.-Nr. 0 400 864 051

supersedes 9.82
 company: KHD
 engine: F 4 L 913
 55 kW (75 PS)
 Schlepper D 7807 -
 S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,45-2,65)
 Port closing at prestroke 2,50-2,60 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,3+0,1	6,8 - 6,9	0,3(0,45)			
325	8,7-8,9	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 17	325	8,3	1150	1,3-11,4
	x = 3,5								900	1,6-11,9
ca. 54	1190-1200 = 10,3						325	8,7-8,9	500	2,1-12,2
⑤	1230-1260 = 4,0						460-520 = 2,0			
	1400 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	68,0 - 69,0 (66,0 - 71,0)	1190-1200*	500	57,5 - 59,5 (55,5 - 61,5)	-	-	-	-
.			800	64,5 - 66,5 (62,5 - 68,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 3
4. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 8 B 2168 L company: KHD

Komb.-Nr. 0 400 864 054

1 - 3 - 4 - 2 je $90^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes 3.83

engine: BF 4 L 913 T
66 kW (90 PS)₋₁
bei 2300 min⁻¹
Schlepper DX 92 (1)
60 kW (82 PS)₋₁
bei 2300 min⁻¹
Schlepper DX 86 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
($2,45-2,65$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5-7,6	
325	7,7-7,9	0,9 - 1,5	0,2(0,4)	7,7-7,9	1,0-1,6	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 29	325	7,3	1150	11,8+0,1
	X = 4,0						100	min. 19,5	500	12,3+0,1
							325	7,7-7,9	965	12,0+0,2
ca. 53	10,8	1190-1200					700-760	= 2,0		
⑤	4,0	1325-1355								
	1495	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
(1) 1150	82,0-83,0 (80,0-85,0)	1190-1200*	800	79,0-82,0 (76,5-84,5)	100	108,5-118,5 = RW 16,9 - 17,4 mm	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

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B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x = 4,0						100	min.19,0	500	11,2+0,1
ca.56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
②a	4,0	1325-1355					720-780	= 2,0		
	1475	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230	800	65,5-68,5 (63,5-70,5)	100	108,5-118,5	5	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d

1. Edition

En

PE8 P120 A920/5 RS 293

RZU 750 P 1/9 R

supersedes...

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 029

1-6- 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0- 1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
	Not known. Carry out adjustment on engine.			-	-	100	19,5-21,0 RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testoil-ISO 4113

C1

C1

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 40,5 d 3
1. Edition

En

PE 8 P 120 A 920/5 RS 293 RZU 750 P 1/14 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes
company KHD
engine BA 16 M 816
Komb.-Nr. 0 401 948 034

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 $\pm 0,1$	20,5-22,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	750	14,0	-	-	-	-	-	-		
	770	4,8-8,3								
	800	1,0-1,5								
	840	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to .)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		-		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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6.83

C2

C2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d 1

1. Edition

En

PE8P120A920/5 RS 293

RZU 900 P 2/11 R

supersedes
company KHD

1-6 - 4 - 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

engine BA 16 M 816

Komb.-Nr. 0 401 948 030

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
full	900 1,0-14,0 910 1,0- 9,0 920 1,0- 4,0		-	-	-	-	-	-	-	-
2a	970 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery 5 Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
Not known. Carry out adjustment on engine.		-	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d 2

1. Edition

En

PE8PT20A920/5 RS 293 RZU 900 P2/12R

supersedes -
company KHD

engine BA 16 M 816

1-6 - 4 -5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 401 948 032

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		-		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 5

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 323 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

superseded

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 084

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min Control rod travel 10 11	
ca. 56	Control rod travel mm 2	Control rod travel mm rev/min 3				ca. 18				
	1000	16,0	without auxiliary spring			300	8,0	980	0	
	1030	10,8				50	19,0-21,0	430	0	
	1055	6,0	with auxiliary spring			300	7,7-8,3	340	1,2-1,8	
2a	1030	10,0-12,0				350	4,4-6,0			
	1055	3,8-6,0				500	0 -1,0			
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery 5 Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
Not known.		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.								

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Testoil-ISO 4113

C5

C5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 3
1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 343 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 092

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 $\pm 0,1$	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0	with auxiliary spring				300	7,7-8,3	340	1,2-1,8
	1030	10,0-12,0					350	4,4-6,0		
	1055	3,8-6,0					500	0 -1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

<div>2b</div> Full-load stop		<div>6</div> Rotational-speed limit		<div>3a</div> Fuel delivery characteristics		Starting fuel delivery		<div>5</div>		<div>4a</div> Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle					
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min		Control rod travel mm	
1	2	3		4	5	6	7	8		9	
Not known.		1010-1020*		-	-	100	19,5-21,0	-		-	
Carry out adjustment on engine.							mm RW				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

BOSCH

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C6

C6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 4

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 POA 344 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

superseded KHD

company

BA 16 M 816

engine Komb.-Nr. 0 401 878 093

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5 - 21,1	0,8			
600	6,0-6,2	4,1 - 5,3				
600	15,0 \pm 0,1	28,6 - 31,0				
200	6,0-6,2	1,0 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4			Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel rev/min mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8								
	1055	6,0	with auxiliary spring			50	19,0-21,0		430	0
2a	1030	10,0-12,0				300	7,7-8,3		340	1,2-1,8
	1055	3,8-6,0				350	4,4-6,0			
	1200	0,3-1,0				500	0 -1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
Not known. Carry out adjustment on engine.		1010-1020*	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 4

1. Edition

En

PE 8 P120 A920/5 RS293

RSUV 300-750 P9 A 346 R

supersedes

company KHD

engine BA16M816

Komb.-Nr. 0 401 878 095

1-6 - 4 - 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) $\begin{matrix} 9,0-12,0 \\ \text{mm} \end{matrix}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,1	4,1- 5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750	16,0	without auxiliary spring			ca. 31	300	8,0	730	0
	770	12,5					50	19,0-21,0	400	0
	800	6,2					300	7,7- 8,3	320	1,2-1,8
	785	7,4-10,4	with auxiliary spring				350	1,4-4,2		
	800	4,8-7,8					400	0 -1,0		
	880	0,3-1,0								
②a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
Not known. Carry out adjustment on engine.		760-770*	-	-	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 a2
1. Edition

En

PE12PT120A 920/5 RS 294

RSUV 300-750P9 A 346 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes -

company KHD

BA12 M 816

engine

Komb.-Nr.0 401 870 057

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	18,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
							50	19,0-21,0	400	0
			with auxiliary spring				300	7,7-8,3	320	1,2-1,8
2a	785 800 880	7,4-10,4 4,8- 7,8 0,3- 1,0					350	1,4-4,2		
							400	0 -1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
Not known. Carry out adjustment on engine.		760-780*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C9

C9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/9 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 940 024

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDC) RW 9,0 - 12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	750 758 800	1,0-14,0 1,0-1,5 1,5	-	-	-	-	-	-	-	-
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known. Carry out adjustment on engine.		-	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C10

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 KHD 30,4 i 3

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/14 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes=
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 027

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
full	750	14,0	-	-	-	-	-	-	-	-
	770	4,8-8,3								
	800	1,0-1,5								
	840	1,0								
②a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2								
Nöt known. Carry out adjustment on engine.		-	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 d
1. Edition

En

PE 12 P 120 A 920 RS 294

RS 250/1000 P1/422 R

supersedes
company: KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

engine: BA 12 M 816

Komb.-Nr. 0 401 870 060

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
	X = 5,0						250	6,3-6,5	420	16,2-16,8
ca. 58	13,9	1040-1050					390-450	= 2,0	550	14,9-15,0
2a	4,0	1105-1135				150-200				
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known.		1040-1050*	-	-	100	19,5-21,0	-	-	
Carry out adjustment on engine.						mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/11 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -
company: KHD
engine: BA 12 M 816
Komb.-Nr. 0 401 940 025

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW 9,0 - 12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0					-	-		
	920	1,0-4,0					-	-		
②a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known. Carry out adjustment on engine.		-	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C13

CA3

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 2

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/12 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 026

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDE) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		-		-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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C14

C14.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 e

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-600 P 8 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 061

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ((1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	14,9+0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever: 1			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,9	600	14,9-15,0
	x = 4,0						300	6,3-6,5	220	16,2-16,8
							310-370	=2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
Not known.		640-650*	-	-		100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 b

1. Edition

En

PE12 P120 A 920 RS 294 RSUV 300-750 P9 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes...

company: KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 062

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9 \pm 0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-1,0	-	-	-	ca. 26	300	5,9	750	14,9-15,0
	$\chi = 4,0$						300	6,3-6,5	280	16,2-16,8
							325-385	= 2,0	400	14,9-15,0
ca. 62	13,9	790-800								
2a	4,0	820-850								
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 4a Idle stop Control rod travel rev/min 8 9	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		mm 9
Not known.		790-800*	-	-	-	100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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C16

C16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-750 P 9 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 049

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,5(0,9)			
200	6,0-6,2	1,2-2,0	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever: 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
800	0,3-1,0		-	-	-	ca. 31	300	7,5	750	12,0-12,1
x = 4,0							300	7,9-8,1	450	12,0-12,1
							315-375	=2,0	325	13,2-13,8
ca. 68	11,0	770-780								
4,0		790-820								
900	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
Not known.		770-780*	-	-		100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Testoil-ISO 4113

C17

Test Specifications Fuel Injection Pumps (1A) and Governors

WPF 001/4 KHD 30,4 h **40**
1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-600 P 8 A 322 R

supersedes

company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

engine BA 12 M 816

Komb.-Nr. 0 401 870 059

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,9	600	14,9-15,0
	X = 4,0						300	6,3-6,5	220	16,2-16,8
							310-370	= 2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Not known.		640-650 *		-	-	100	19,5-21,0	-	-
Carry out adjustment on engine.							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2
6.83

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 f 2

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 POA 323 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 063

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring			ca. 18	300	8,0	980	0
2a	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0				with auxiliary spring	50 300 350 500	19,0-21,0 7,7-8,3 4,4-6,0 0 - 1,0	430 340	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.			1010-1020*	-	-	100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Testoil-ISO 4113

C19

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f 3

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 POA 343 R

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 064

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC) = RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm/rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0					50 300 350 500	19,0-21,0 7,7-8,3 4,4-6,0 0-1,0	430 340	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min		rev/min		rev/min	
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
Nöt known. Carry out adjustment on engine.		1010-1020*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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C20

C20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 g

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-1000 P 0 A 343 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
BA 12 M 816
engine
Komb.-Nr. 0 401 870 054

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 $\pm 0,1$	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection or control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring			ca. 18	300	8,0	980	0
②a	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0				with auxiliary spring	50 300 350 500	19,0-21,0 7,7-8,3 4,4-6,0 0-1,0	430 340	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		1010-1020*		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

Testoil-ISO 4113

C21

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 30,4 f 4
1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 PO A 344 R

supersedes

company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

engine BA 12 M 816

Komb.-Nr. 0 401 870 065

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,0-2,1} (1,95-2,15) mm (from BDC± RW 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	8,0	980	0		
	1030	10,8							430	0
	1055	6,0								
	1030	10,0-12,0	with auxiliary spring		350	4,4-6,0				
	1055	3,8-6,0					500	0 - 1,0		
	1200	0,3-1,0								
②a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
Not known. Carry out adjustment on engine.		1010-1020	* -	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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C22

C22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 g 1

En

1. Edition

PE 12 P 120 A 920/5 RS 294 RSUV 300-1000 P 0 A 344 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes:

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 055

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring			ca. 18	300	8,0	980	0
2a	1030	10,0-12,0				with auxiliary spring	50	19,0-21,0	430	0
	1055	3,8-6,0					300	7,7-8,3	340	1,2-1,8
	1200	0,3-1,0					350	4,4-6,0		
							500	0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5		rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known.		1010-1020*	-	-		100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a

3. Edition

En

PE8 P 120 A 920/ 5 RS 293

RSUV 300-750 P9A345R

supersedes 3.78

company KHD

engine

BA 16 M 816

Komb.-Nr. 0 401 878 094

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
($2,0-2,1$ mm) ($2,0-2,1$ mm)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
	785 800 880	7,4-10,4 4,8- 7,8 0,3- 1,0					50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0 -1,0	400 320	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5		rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		760-770*	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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C24

C24

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 a 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-750 P 9 A 345 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 056

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC* RW 9,0-12,0 mm)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /1000 strokes 3	Difference cm ³ /1000 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /1000 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0					50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0-1,0	400 320	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2a Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.			760-780*	-	-	100	19,5-21,0 RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 30,4 b 2
1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-750 P 9 A 346 R

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 066

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca.31	300	8,0	730	0
2a	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0				with auxiliary spring	50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0 - 1,0	400 320	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test of temp. 40°C (104°F)		Note changed to)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known. Carry out adjustment on engine.		760-770*	-	-	100	19,5-21,0 RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D2

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4f
1. Edition

En

PE12 P120 A920 RS 294

RSUV 300-1000 POA 348 R

1-10-5-7-2-11-6-8-3-12-4-9- je 30° ±0,5° (±0,75°)

supersedes

KHD

company BA 12 M 816

engine

Komb.-Nr. 0 401 870 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)

mm (from BDCF RW 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9±0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 18	300	5,9	1000	14,9-15,0
		X=1,0					300	6,3-6,5	270	16,2-16,8
ca. 60	13,9	1040-1050					325-385	= 2,0	400	14,9-15,0
2a	4,0	1060-1090								
	1190	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known.		1040-1050*	-	-	100	19,5-21,0	-	-	
Carry out adjustment on engine.						mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 b1

1. Edition

En

PE12P120 A 920 RS 294 RSUV 300-750 P9 A 350
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes
company KHD
BA 12 M 816
engine
Komb.-Nr. 0 401 870 071

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2- 2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 4,0	-	-	-	ca. 26	300	5,9	-	-
ca. 62	13,9	790-800					300	6,3-6,5		
2a	4,0	820-850					330-390	= 2,0		
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes								
1	2			4	5	6	7	8	9
Not known.		790-800*	-	-	-	100	19,5-21,0	-	-
Carry out adjustment on engine.							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 f1

1. Edition

En

PE12P120 A 920 RS 294 RSUV 300-1000 P 0 A 352 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 068

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9-0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,4-3,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4			Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800 0,3-1,0 X = 1,0		-	-	-	ca. 18	300 5,9 300 6,3-6,5		1000 14,9-15,0 270 16,2-16,8 400 14,9-15,0	
ca. 60	13,9 1040-1050 4,0 1060-1090 1220 0,3-1,7						325-385=2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
Not known. Carry out adjustment on engine.		1040-1050*		-		100 19,5-21,0 mm RW		-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

D5

D5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 d

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 750 P 1/9
Komb.-Nr. 0 401 946 024

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	10
Not known. Carry out adjustment on engine.		750	-	-	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D6

D6

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 KHD 15,2 c

1. Edition

En

PE 6 P 120 A 420 LS 324

RS 250/1000 P 1/422 R

supersedes -

Komb.-Nr. 0 401 876 221

company KHD

0 401 821 001

engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
	x = 5,0						260-320	= 2,0	420	16,2-16,8
VH ca.58						150-200			550	14,9-15,0
FH voll	13,9	1040-1050								
②a	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat		③a Fuel delivery; characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known.		1040-1050*	-	-	-	100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D7

D7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WMP 001/4 KHD 15,2 d 1

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/11

Komb.-Nr. 0 401 946 026

supersedes

company: KHD

engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to .)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known. Carry out adjustment on engine.		900	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D8

D8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 d 2

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/12
Komb.-Nr. 0 401 946 027

supersedes
KHD
company
BA 6 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed	4 Control lever deflection in degrees	rev/min	Control rod travel mm	3 Torque control	Control rod travel mm
Degree of deflection of control lever	2	3	4 5 6	7	8	9	10	11
1	2	3	4 5 6	7	8	9	10	11
full	900	14,0	- - -	-	-	-	-	-
	910	10,8-12,2						
	930	4,0-8,4						
2a	1000	1,0						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop	6 Rotational speed limit	3a Fuel delivery characteristics	Starting fuel delivery	4a Idle stop
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min	Idle	Control rod travel mm
rev/min	3	4	rev/min	8
1	3	5	7	9
2	3	5	7	9
Not known. Carry out adjustment on engine.	900	-	100	-
			19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

D9

29

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 b

1. Edition

En

PE 6 P 120 A 420 LS 324

RSV 250-1000 P7A 304 R

supersedes -

company: KHD

engine: BA 6 M 816

Komb.-Nr. 0 401 876 226

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9		rev/min 10	
800	0,3-1,0		-	-	-	ca. 24	250	5,9	1000	14,9-15,0
x = 5,5							250	6,3-6,5	300	16,2-16,8
							345-405	= 2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
4,0	1080-1110									
1250	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
Not known.		1040-1050*	-	-		100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col 2

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D10

D10

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 a

1. Edition

En

PE 6 P 120 A 420 LS 324 RSUV 250-600 P8A 321 R
Komb.-Nr. 0 401 876 228

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	14,9+0,1	29,6-30,0	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	775	0,3-1,0	-	-	-	ca. 26	250	5,9	600	14,9-15,0
	x = 4,0						250	6,3-6,5	270	16,2-16,8
							260-310	= 2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	800	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to () rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
Not known.		640-650*	-	-	-	100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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6.83

D11

DAA

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 750 P 1/9

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 028

supersedes:
company: KHD
engine: BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known.		750	-	-	100	19,5-21,0	-	-	
Carry out adjustment on engine.						mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

D12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/11

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 031

supersedes
KHD
company
BA 8 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
②a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
Not known. Carry out adjustment on engine.		900	-	-	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D13

D13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 2

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/12

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 033

supersedes
KHD
company BA 8 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 $\pm 0,1$	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	3 Torque control rev/min 10	Control rod travel mm 11
			4	5	6					
full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational- speed limit Note: changed to .) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7		rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		900	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 b

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RS 250/1000 P1/422 R

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes

company KHD

engine BA 8 M 816

Komb.-Nr. 0 401 878 097

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
	X = 5,0						390-450	= 2,0	420	16,2-16,8
									550	14,9-15,0
2a	13,9	1040-1050				150-200				
	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Not known.		1040-1050 *	-	-	-	100	19,5-21,0	-	-
Carry out adjustment on engine.							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

D15

D15

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 20,2 d

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSV 250-1000 P 7 A 304

Komb.-Nr. 0 401 878 089

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes: -

company: KHD

engine: BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	Ca. 18	250	5,9	1000	14,9-15,0
	X = 4,25						250	6,3-6,5	300	16,2-16,8
ca. 60	13,9	1040-1050					340-400	= 2,0	450	14,9-15,0
2a	4,0	1060-1090								
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
Not known.		1040-1050	-	-		100	19,5-21,0	-	-
Carry out adjustment on engine.							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 KHD 20,2 c

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 318 R

1-4-7-6-8-5-2-3 je 45° ± 0,50 (±0,75°)

supersedes-

company KHD

engine BA 8 M 816

Romb.-Nr. 0 401 878 091

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,4(0,8)			
250	6,3-6,5	2,2-2,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,9	800	14,9-15,0
	$X = 4,0$						250	6,3-6,5	300	16,2-16,8
							280-340	= 2,0	450	14,9-15,0
ca. 56	13,9	840-850								
②a	4,0	870-900								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known. Carry out adjustment on engine.		840-850 *		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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D17

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WP 001/4 KHD 20,2 c 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 347 R

supersedes: -
company: KHD
engine: BA 8 M 816

Komb.-Nr. 0 401 878 101

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 3,0	-	-	-	ca. 17	250	5,9	800	14,9-15,0
ca. 51	13,9	840-850					250	6,3-6,5	300	16,2-16,8
2a	4,0	860-890					280-340	= 2,0	450	14,9-15,0
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known. Carry out adjustment on engine.		840-850*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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D18

D18

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e

6. Edition

En

PE6P110 A 720 RS 393

RQV 200-1200 PA 467

superseded 2.82

company: Scania

engine: DN 801

Komb.-Nr. 0 401 846 424

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,0-3,1$
 $(2,95-3,15)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	8,7-8,9	0,5(0,8)			2,5 [±] 0,1
225	7,3-7,5	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 16	100	min. 8,4	150	0,5-0,8
ca. 61	11,0 4,0 1500	1240-1250 1365-1395 0 - 1,0					225 440-500=	6,9-7,1 2,0	500 850 1200	3,6-4,2 5,8-6,0 8,2

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
600	87,0-89,0 (85,0-91,0)	1240-1250*	1200	99,5-102,5 (97,0-105,0)	100	150,0-200,0 =20,0-21,0 mm RH	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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D19

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e 1

3. Edition

En

PE6P110A 720 RS 393

RQV 250-1200 PA469

Komb.-Nr. 0 401 846 423

supersedes 2.82
company: Scania
engine: DN 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC)
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	8,7-8,9	0,5(0,8)			2,5 ± 0,1 (2,2-2,9)
225	7,3-7,5	1,5-1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 13	100	min. 8,4	200	0,7-0,9
ca. 51	11,0 4,0 1450	1240-1250 1325-1355 0 - 1,0					225 335-395=2,0	6,9-7,1	500 800 1200	3,0-3,5 5,1-5,3 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)	Torque-control travel (5) Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
600	87,0-89,0 (85,0-91,0)	1240-1250*	1200	99,5-102,5 (97,0-105,0)	100	150,0-200,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 n 1

1. Edition

En

PE 6 P 110 A 720 RS 393 RQ 750 PA 528

Kom.-Nr. 0 401 846 479

supersedes

company Scania

engine: DN 8 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	9,0-9,2	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,0 4,0 850	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: 750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
700	90,0-92,0 (88,0-94,0)	-	-	-	100	140,0-190,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

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D21

D21

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 n

1. Edition

En

PE 6 P 110 A 720 RS 393 RQ 900 PA 528
Komb.-Nr. 0 401 846 480

supersedes -
company: Scania
engine: DN 8 01

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0 - 3,1}{(2,95 - 3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	9,4-9,6	0,5 (0,8)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	11,0 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 900-905 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes / mm 7	
850	94,0-96,0 (92,0-98,0)	-	-	-	-	100	150,0-200,0 = 20,0-21,0 mm RW

Checking values in brackets

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D22

D22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 e

1. Edition

Er

PE 6 P 120 A 420 LS 399 RSV 250-1000 P 7 A 460
Komb.-Nr. 0 401 876 236

supersedes
company: KHD
engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
	x = 5,75								300	16,2-16,8
							250	6,3-6,5	450	14,9-15,0
ca. 67	13,9	1040-1050					345-405	2,0		
②a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	10
LDA	0,7 bar	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	-
Not known.									
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 20,2 f

1. Edition

En

PE 8 P 120 A 620/4 LS 400 RSV 250-1000 P7A 460

Komb.-Nr. 0 401 878 100

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^0 \pm 0,5^0$ ($\pm 0,75^0$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company KHD

engine BA 8 M 816

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5 (0,9)			
250	6,3-6,5	2,2-2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Too loose	200	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
	$x = 5,75$						250	6,3-6,5	300	16,2-16,8
							345-405	= 2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
(2a)	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational-speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to)				Idle			
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
Not known.		1040-1050*		-	-	100	19,5-21,0	-	-
Carry out adjustment on engine.							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D24

D24

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,0 c 1

5. Edition

En

PE 8 P 110 A 920/4 LS 3020 RQV 250-1000 PA 306-2 R

Komb.-Nr. 0 401 848 717

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

replaced by .83

company: Saab-Scania

engine: DS 14 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3 - 3,4

(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,5±0,1	16,2 - 16,4	0,6(0,8)			3,3 ± 0,1 (3,0 - 3,5)
225	4,4-4,6	1,5 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 61	12,5 4,0 1300	1040-1050 1150-1180 0 - 1,0					250	4,4-4,6	470	3,4-3,8
							350-410=2,0		730	5,1-5,3
									1000	7,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test of temp. 40°C (104°F) (2)		Rotational speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (3b) (5a)		Starting fuel delivery idle switching point (6)	Torque-control travel (5)	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	Control rod travel mm 8
LDA 1000	0,7 bar 162,0-164,0 (160,0-166,0)	1040-1050*	LDA 600	0,7 bar 165,5-168,5 (163,0-171,0)	100	240,0-290,0 = 20,0-21,0 mm RM	-
			LDA 500	0 bar 127,0-131,0 (125,0-133,0)			-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

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E 1

E 1

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,0 c 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3020 + RQV..PA 306-2 R	0,70	0 0,45 0,32	13,5 - 13,6 12,0 - 12,1 13,1 - 13,2 12,2 - 12,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 8,0 k

5. Edition

En

PE 6 P 110 A 720 RS 3034 RSV 350-1200 P 1/462 R
Komb.-Nr. 0 401 876 715

supersedes 2.82
company Scania
engine DS 8 05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3+0,1	12,1-12,3	0,5(0,8)			
350	5,3-5,5	1,5-1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 29	350	5,5	-	-
	x = 4,0						350	5,9-6,1		
ca. 71	11,3	1240-1250					500-560	2,0		
2a	4,0	1310-1340								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	121,0-123,0 (119,0-125,0)	1240-1250*		1200	127,5-130,5 (125,0-133,0)	100	190,0-240,0 =20,0-21,0 mm RW	350	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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E3

E3

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 d
4. Edition

En

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 275 R

Komb.-Nr. 0 401 846 709

supersedes 1.83
company: Scania
engine: DS 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4 mm (from BDC)
(3,25-3,45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3±0,1	11,7-11,9	0,5 (0,8)			2,5±0,1
225	5,3-5,5	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 5,9	150	0,6-0,8
ca. 62	11,3 4,0 1500	1240-1250 1370-1400 0 - 1,0					225	4,4-4,6	500	3,8-4,4
							330-390 = 2,0		850	5,9-6,1
									1200	8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 600	0,9 bar 117,0-119,0 (115,0-121,0)	1240-1250 *	LDA 1200	0,9 bar 119,5-122,5 (117,0-125,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 81,0-85,0 (79,0-87,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

E4

E4

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D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 d -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS3034 + RQV.. PA 275 R	0,90	0 0,40 0,25	12,3-12,4 10,6-10,7 11,9-12,0 10,8-11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 h
4. Edition

En

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 529

Komb.-Nr. 0 401 846 732

supersedes 5.81

company: Scania

engine: DSI 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,3 - 3,4}{(3,25-3,45)}$ mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	12,9 - 13,1	0,5(0,8)			2,5 ± 0,1
225	5,3-5,5	1,5 - 1,9	0,2(0,4)			(2,2 - 2,9) **

Adjust the fuel delivery from each outlet according to the values in .

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 14	100	min. 6,8	150	0,5-0,8
ca. 64	11,6	1240-1250					225	5,3-5,5	500	3,7-4,3
	4,0	1395-1425							850	6,2-6,4
	1150	0 - 1,0					390-450 = 2,0		1200	8,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 129,0-131,0 (127,0-133,0)	1240 - 1250*	LDA 1200	0,9 bar 134,5-137,5 (132,0-140,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 79,0-83,0 (77,0-85,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

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E6

EG

D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 h

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3034 + RQV..PA 529	0,90	0 0,44 0,29	12,6 - 12,7 10,5 - 10,6 12,2 - 12,3 11,2 - 11,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 8,0 o

1. Edition

En

PE 6 P 110 A 720 RS 3035

EP/RSV 350-1200 P 1/310 R

supersedes Scania
company DS 8
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,25-3,45)

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,6+0,1	12,1-12,3	0,4(0,8)			2,5 ⁺ 0,1 (2,2-2,9) * *
225	3,9-4,1	0,9-1,3	0,2(0,5) **			

Adjust the fuel delivery from each outlet according to the values in

* * In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 71	1200 1250 1300	16,0 11,9 6,3	without auxiliary spring with auxiliary spring			ca. 31	350	6,0	-	-
②a	1250 1320 1420	10,8-12,4 2,4-6,0 0-1,0					100 350 400 520	19-21 5,7-6,3 3,3-4,5 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min		③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	115,0-117,0 (112,0-120,0)	1240-1250*		600	119,0-123,0 (116,0-126,0)	100 350	200,0-250,0 9,0-13,0	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

E8

E8

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 r 3

2. Edition

En

PE 6 P 110 A 720 RS 3040 RQV 200-1200 PA 379

Komb.-Nr. 0 401 846 730

superseded 1.80

company: Scania

engine: DS 11 03

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,3 - 3,4$
 $(3,25 - 3,45)$ mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	13,4±0,1	16,3 - 16,5	0,6(0,8)			3,3 ± 0,1 (3,0 - 3,5)
225	4,4-4,6	1,7 - 2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 61	12,4 4,0 1550	1240-1250 1395-1425 0 - 1,0					225 310-370=2,0	4,4-4,6	500	3,9-4,4
									850	5,6-5,8
									1200	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,9 bar 163,0-165,0 (161,0-167,0)	1240-1250*	LDA 600	0,9 bar 169,5-172,5 (167,0-175,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 126,0-130,0 (124,0-132,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
6.83

Testoil-ISO 4113

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E9

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D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 r.3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3040 + RQV..PA 379	0,90	0 0,37 0,25	13,4 - 13,5 11,7 - 11,8 12,7-12,8 11,8-12,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps and Governors

① WPP 001/4 SCA 11,0 r
5. Edition

En

PE 6 P 110 A 720 RS 3040, I...Z RQV 250-1100 PA 379 R

Komb.-Nr. 0 401 846 710

supersedes 83
company Scania
engine: DS 1101

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4

(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	15,7-15,9	0,6(0,8)			3,3 ± 0,1 (3,0-3,5)
225	4,4-4,6	1,7-2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 64	12,0	1140-1150					250	4,4-4,6	500	3,8-4,0
	4,0	1250-1280					310-370	= 2,0	800	5,4-5,6
	1400	0 - 1,0							1100	8,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9	mm 10
LDA 1100	0,9 bar 157,0-159,0 (155,0-161,0)	1140-1150 *	LDA 600	0,9 bar 161,5-164,5 (159,0-167,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-	-
			LDA 500	0 bar 126,0-130,0 (124,0-132,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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E11

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing
increasing pressure - in bar gauge pressure

SCA 11,0 r -2-

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3040 + RQV ... PA 379R	0,90	0 0,37 0,25	13,0 - 13,1 11,7 - 11,8 12,7 - 12,8 11,8 - 12,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Increased or reduced outputs of the types listed on page 1

Output variation	Output %	Fuel delivery in cm ³ /1000 strokes at pump speed (min ⁻¹) 1)				Adjustment of control-rod position from 100% setting (mm)
		1100	900	750	600	
P	120	205	208	212	214	+ 2,6
U	115	191	196	198	200	+ 1,9
R	113	186	191	192	195	+ 1,7
W	110	180	185	185	188	+ 1,3
V	108	175	179	179	183	+ 1,0
Y	105	170	173	172	177	+ 0,7
T	103	166	167	166	171	+ 0,4
S	98	154	156	156	158	- 0,2
X	95	146	149	149	150	- 0,5
Q	93	141	145	145	146	- 0,8
Z	90	134	138	139	140	- 1,1
O	88	131	134	136	137	- 1,3
N	85	124	126	130	131	- 1,6
M	80	114	115	119	121	- 2,1
L	75	105	106	108	111	- 2,6
K	70	98	98	98	99	- 3,0
J	65	89	90	90	90	- 3,4
I	60	86	84	83	80	- 3,8

1) Tolerances with fuel quantity are $\pm 1 \text{ cm}^3$ at setting speed.

With subsequent orders from KH/ALP only the standard setting according to page 1 will be delivered. If required, the above mentioned variations are to be carried out through your local BOSCH Service Station.

The delivery amounts given in the table have been compiled from Saab-Scania documentation upon their request.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 s2

1. Edition

En

PE6P 110 A 720 RS 3065

RQ 250/1100 PA 470 R

supersedes

company: Scania

engine: D 11

Komb.-Nr. 0 401 846 722

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,3±0,1	13,6-13,8	0,4 (0,8)			2,5 ±0,1
225	5,8-6,0	0,9 - 1,3	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	1100	16,0	11,3	1145-1160	225	5,9	100	min. 7,5	-	-
				4,0	1215-1245			225	5,8-6,0		
				1400	0 - 1,0			320-380	= 2,0		

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	Control rod travel mm 3a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	136,0-138,0 (133,0-141,0)	-		600	136,0-140,0 (133,0-143,0)	100	200,0-250,0
						225	9,0 - 13,0 Streug. max. 4 (8)

Checking values in brackets

6.83

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E14

E14

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 SCA 8,0 f

4. Edition

En

PE 6 P 110 A 720 RS 3067

RSV 350-1200 P 1/462 R

supersedes 1.81
company Scania
engine DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,7+0,1	11,5-11,7	0,4(0,8)			2,5 ⁺ -0,1
350	4,4-4,6	0,7-1,1 * *				(2,2-2,9) * *

Adjust the fuel delivery from each outlet according to the values in
* * In the case of greater dispersion after the delivery-valve spring pre-tensioning accordingly

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0 x = 4,0	-	-	-	ca. 30	350	4,0	1200	11,7-11,8
							100	min.20,0	380	12,9-13,5
ca. 70	10,7	1240-1250					350	4,4-4,6		
②a	4,0	1295-1325					475-535	=2,0		
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ...) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1200	115,0-117,0 (112,0-120,0)	1240-1250*	600	115,0-119,0 (112,0-122,0)	100	190,0-240,0	0 -	-	
					350	9,0-13,0 * *			
					1350	4 mm RW Streug. max. 4(7)			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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6.83

E15

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,0 e

1. Edition

En

PE 8 P 110 A 920/4 LS 3068 RSV 350-1100 P 1/463

Komb.-Nr. 0 401 878 702

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes Scania
company DS 14 02
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from 9DC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,5+0,1	16,5-16,7	0,6(0,8)			2,5 ⁺ 0,1
350	6,2-6,4	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 31	350	5,5	-	-
	x = 4,0						350	5,9-6,1		
ca. 66	12,5	1140-1150					540-600	=2,0		
2a	4,0	1220-1250								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	165,0-167,0 (163,0-169,0)	1140-1150*	600	168,5-171,5 (166,0-174,0)	100	190,0-240 =20,0- 21,0 mm RW	0 350	6,3	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Testoil-ISO 4113

E16

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 14,0 f

1. Edition

En

PE 8 P 110 A 920/4 LS 3068 RQ 750 PA 528

Komb.-Nr. 0 401 848 727

supersedes

company: Scania

engine: DS 1402

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,5+0,1	16,6-16,8	0,6(0,8)			$2,5 \pm 0,1$ (2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	12,5 4,0 850	750-755 771-784 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7	Control rod travel mm 8
700	166,0-168,0 (164,0-170,0)	-	-	-	100	190,0-240,0 = 20,0-21,0 mm RW	

Checking values in brackets

6.83

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Testoil-ISO 4113

E17

E17

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/SCA 8,0 m 3

1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 750 PA 528

supersedes

company: Scania

engine: DS 840

Komb.-Nr. 0 401 846 775

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4

(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,9±0,1	11,7-11,9	0,5 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PPG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
-	-	-	-	10,9 4,0 850	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
700	117,0-119,0 (115,0-121,0)	-	-	-	-	100	200,0-250,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

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E18

E18

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 m
1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 900 PA 528
Komb.-Nr. 0 401 846 776

superseded -

company: Scania

engine: DS8 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

 $3,3 - 3,4$
 $(3,25 - 3,45)$

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,9+0,1	12,0-12,2	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	10,9 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

900-905 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
850	120,0-122,0 (118,0-124,0)	-	-	-	-	100	200,0-250,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

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E19

E19

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 m 2

1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 750 PA 528-1

Komb.-Nr. 0 401 846 777

supersedes

company: Scania

engine: DS 18 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3 - 3,4
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	13,2-13,4	0,5 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	11,6 4,0 850	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
700	132,0-134,0 (130,0-136,0)	-	-	-	-	100	200,0-250,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

E20

E20

BOSCH

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 8,0 m 1

1. Edition

En

PE 6 P 110 A 720 RS 3076

RQ 900 PA 528-2

Komb.-Nr. 0 401 846 778

supersedes

company: Scania

engine: DS 18 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3 - 3,4
(3,25 - 3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,6+0,1	13,4-13,6	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,6 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

900-905 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
850	134,0-136,0 (132,0-138,0)	-		-	-	100	200,0-250,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 SCA 11,0 y 1

1. Edition

En

PE 6 P 110 A 720 RS 3115 RSV 350-1100 P 1/481

Komb.-Nr. 0 401 876 728

supersedes -

company Saab-Scania

engine DN 1101

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,3-3,4}
(3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,8±0,1	11,9-12,1	0,5(0,8)			3,3±0,1 (3,0-3,5)
350	4,5-4,7	2,0-2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	350	4,1	-	-
	X = 5,75									
ca. 66	10,8	1140-1150					350	4,5-4,7		
	4,0	1210-1240					450-510	= 2,0		
2a	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		Note: changed to ... rev/min		Idle		Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
600	119,0-121,0 (117,0-123,0)	1140-1150*	1100	120,5-123,5 (118,0-126,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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E22

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 y

1. Edition

En

PE 6 P 110 A 720 RS 3115 RQV 200-1100 PA 468

supersedes

compansaab Scania

engine: DN 11 01

Komb.-Nr. 0 401 846 764

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,3-3,4$ mm (from BDC)
(3,25-3,45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,8±0,1	11,9-12,1	0,5(0,8)			3,3±0,1 (3,0-3,5)
225	4,7-4,9	2,0-2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1120	15,2-17,8	-	-	-	ca. 11	100	min. 6,2	150	0 - 0,3
ca. 61	10,8 4,0 1400	1140-1150 1240-1270 0 - 1,0					225 350-410=2,0	4,7-4,9	470 780 1100	3,6-4,2 5,6-5,8 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	119,0-121,0 (117,0-123,0)	1140-1150	1100	120,5-123,5 (118,0-126,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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E23

E23

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 1
3. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL
Komb.-Nr. 0 400 846 185

supersedes 8.82
company: Daimler-Benz
engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	6,9-7,1	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 14	100 300	min. 7,5 6,9-7,1	250 660 1060 1475	0,8-1,1 3,4-3,8 5,3-5,5 8,3
ca. 60	7,2 4,0 1700	1505-1515 1560-1590 0 - 1,0				330-450 (3a)				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	71,5-81,5 bei 12,9-13,8 mm RW	1450 500 800 1200	8,2-8,3 9,2-9,3 8,9-9,1 8,4-8,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 2

1. Edition

En

PES 6 A 80 D 410 RS 2085 Y

RQV 300-1475 AB 621 DL

supersedes

company: Daimler-Benz

engine:

Komb.-Nr. 0 400 846 241

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke
2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6-4,7	0,2(0,35)			
300	6,5-6,7	1,2-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 11	100	min. 8,1	275	1,1-1,2
ca. 64	7,2 4,0 1700	1490-1500 1535-1565 0-1,0				380-500	300	6,5-6,7	675 1075 1475	3,5-3,8 5,4-5,5 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a		Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1450	46,0-47,0 (44,5-48,5)	1490-1500*	500	41,0-44,0 (39,5-45,5)	100	78,0-88,0 (75,0-91,0) = 13,7-14,1 mm RW	1450 500 840 1100	8,2+0,1 9,1+0,1 9,0+0,2 8,5+0,3	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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F1

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 4,4 c 1

1. Edition

En

PES 4 A 90 D 410 RS 2195

RQ 250/1200 AB 849 L

supersedes...

Komb.-Nr. 0 400 844 057

company: OM Brescia
engine: CO 3 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve, mm 6
1200	10,9+0,1	8,0 - 8,1	0,3(0,45)			
250	7,4-7,6	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		rev/min 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 8		rev/min 9		Torque control rev/min 11		Control rod travel mm 12	
700		15,6-16,3		700		16,0		10,0		250		7,5		100		1200		10,9-11,0	
		VH= max. 46°						4,0						250		700		10,9-11,1	
								1245-1260						470-510					
								1335-1365											

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1245-1260 min

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery idle speed rev/min 6		Control rod travel mm 7	
1200		500		800		100			
	79,5-80,5 (77,5-82,5)				74,5-77,5 (72,5-79,5)			min. 16,5 mm RW	

Checking values in brackets

6.83

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 OMB 4,4 c

2. Edition

En

PES 4 A 90 ^C_D 410 RS 2195

RQ 275/1300 AB 856 (1)

supersedes 1.73

RQV 250-1300 AB 803 D (2)

company: OM Brescia

RQV 250-1200 AB 855 D (3)

engine: CO 3 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,15-2,25}
 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery "D" cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,8 - 6,3	0,4	9	5,1 - 5,5	
	6	2,5 - 3,4		6	1,6 - 2,6	
	15	13,6 - 14,3		-	-	
200	9	3,8 - 4,6		9	1,9 - 2,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1300 AB 856 (1)

Checking of slider PRG check		①		Full-load speed regulation				④				Idle speed regulation				⑤		Torque control		③	
Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
700	15,7-16,3	700	16,0	1320	15,6-16,0	640	0	100	6,6-8,1	-	-										
				1360	11,8-15,0			250	5,1-7,2												
				1460	0 - 8,0			400	2,0-4,2												
				1560	0			540	0												

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		② cm ³ /1000 strokes 2		Control rod stop rev/min 3		③a Fuel delivery characteristics rev/min 4		③b cm ³ /1000 strokes 5		Starting fuel delivery idle speed rev/min 6		⑥ cm ³ /1000 strokes/mm Control rod travel 7	
(1)	1300	82,0-84,0	500	800	77,5 - 80,5	100	min. 16,5 mm RW						

Checking values in brackets

6.83

Testoil-ISO 4113

B. Governor Settings

RQV 250-1300 AB 803 D (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1300 1400 1500 1630	15,0-17,6 8,3-13,2 0,8-8,0 0	-	-	-	ca. 10	100 200 300 400	5,8-8,0 4,4-6,6 0,8-4,0 0 -1,3	380 1300	3,2-3,6 8,3
						(3a)				

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2)								
1300	74,0-76,0	1320*	1000 600	72,5-75,5 64,5-67,5	100	ca. 17,0 mm RW	1300 600	0 0,1-0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

RQV 250-1200 AB 855 D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1280 1600	15,0-17,6 0	-	-	-	ca. 10	120 250 350 450 610	6,2-8,0 3,7-6,0 0,5-3,0 0 -1,2 0	400 1280	3,2-3,7 8,2
ca. 62	1200 1300 1400 1550	15,0-17,6 9,0-13,2 1,2-8,3 0				(3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3)								
1200	79,0-81,0	1230-1240*	-	-	100	min. 16,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o

1. Edition

En

PES 5 A 95 D 410 LS 2543 RQV 250-1100 AB 956 L

Komb.-Nr. 0 400 845 056

1-3-5-4-2 je $72^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes

company MAN

engine: D 2565 ME
104 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

1,5-1,6
(1,45-1,65)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	11,1-11,3	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 10	100 250	min. 7,5 5,9-6,1	200 500 800 1100	0,7-0,9 3,6-4,1 5,4-5,7 8,1
ca. 48	10,0 4,0 1300	1140-1150 1170-1200 0-1,0				3a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	110,5-112,5 (108,5-114,5)	1140-1150*	-	-	100	146,5-156,6 (143,5-159,6) =15,6-16,2 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 e

1. Edition

En

PES 6 A 80 D 410 RS 2633 RQV 300-1350 AB 1175 L

Komb.-Nr. 0 400 846 499

supersedes

company: Fiat

engine: 8060.24.661

90,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$
(2,15-2,35) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	13,5+0,1	6,7 - 6,8	0,25(0,35)			
300	7,1-7,3	0,9 - 1,5	0,2 (0,3)			
800	-	C, Sp. 4u.5	0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca. 13	100	min.9,0	250	0,5-1,1
ca. 61	12,5 4,0	1390-1400 1535-1565				350-450	300 920	7,4-7,6 max.1,0	550 1000 1550	3,0-3,5 5,5-5,7 10,0

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1350	0,7 bar 66,5-67,5 (65,0-69,0)	1390-1400*	LDA 800	0,7 bar 59,0-61,0 (57,0-63,0)	200	70,0-80,0 (67,0-83,0) = 15,0-15,5 mm RW	-	-
			LDA 500	0 bar 39,5-41,5 (37,5-43,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

F6

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F6

D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 e

- 2 -

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2633 +RQV..AB 1175 L	0,70	0,27	13,5 - 13,6
		0,23	13,2 - 13,3
		0	12,4 - 12,6
			12,0 - 12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,4 b 1

1. Edition

En

PES 6 A 95 D 410 LS 2639-1 RQ 250/1100 AB 1137-7 L

Komb.-Nr. 0 400 846 524

supersedes-

company: MAN

engine: D 2566 MUH/MUM
176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$
(1,45-1,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,6+0,1	13,5 - 13,7	0,35(0,6)			
250	6,9-7,1	0,9 - 1,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	12,6 4,0 1350	1145-1160 1255-1285 0 - 1,0	250	7,0	100 250 385-425 450	min. 7,4 6,9-7,1 2,0 max. 1,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	135,0-137,0 (133,0-139,0)	-	700 500	121,0-124,0 (118,5-126,5) 121,5-125,5 (119,0-128,0)	100	95,0-105,0 = 14,4-14,6 mm RW

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,5 a

1. Edition

En

PES 5 A 95 D 410 LS 2643 RQV 250-1100 AB 1187 L

Komb.-Nr. 0 400 845 077

1-3-5-4-2 je 72° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company **MAN**
engine: **D 2565 ME**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0 \pm 0,1	11,1-11,3	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 10	100	min. 7,4	200	0,2-0,4
ca. 43	10,0	1140-1150					250	5,9-6,1	600	3,5-3,9
	4,0	1175-1205					325-385=2,0		1000	6,1-6,6
	1300	0-1,0							1175	8,7

Torque control travel a = 0,65 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control ⑤ travel Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	110,5-112,5 (108,5-114,5)	1140-1150*	750	106,5-110,5	100	146,5-156,5 (143,5-159,5) =16,0-16,6 mm RW	1100	11,0+0,1
			500	max.110,5 (max.112,5)			500	11,6+0,1
							840	11,4+0,2
					250	6,5 mm RW	980	11,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 a 1

1. Edition

En

PE 6 P 110 A 320 RS 141

RQV 250-1100 PA 371/2 R

Komb.-Nr. 0 401 846 377

supersedes -

company: Volvo

engine: TD 120 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,6-2,7}{(2,55-2,75)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,3+0,1	18,1-18,3	0,4(0,8)			2,5 ± 0,1
250	5,0-5,2	1,1-1,5	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca.13	100	min.6,5	200	0,7-0,9
ca.46	10,3 4,0 1300	1140-1150 1220-1250 0-1,0					250 320-380 = 2,0	5,0-5,2	500 800 1000	3,0-3,3 5,1-5,4 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 700	0,9 bar 181,0-183,0 (178,0-185,0)	1140-1150*	LDA 700	0 bar 125,0-129,0 (123,0-131,0)	100	390,0-420,0 = 20,0-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 a 1

- 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS141 + RQV..PA371-2R	0,90	0 0,50 0,22	11,3-11,4 8,8-8,9 10,7-10,8 9,3-9,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ①

and Governors

WPP 001 STE 10,0 d 1

3. Edition

En

Testoil-ISO 4113

 PE 6 P 110 A 320 RS 157 RQV 250-550/1150 PA 140 R
 Komb.-Nr. 0 401 846 370

 superseded by 82
 company Steyr
 engine: 7 FA
 235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (1,95-2,15)
 2,00-2,10 mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,2+0,1	16,9 - 17,1	0,4(0,8)			
250	6,4-6,6	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	ca. 48	4,0	625-655	ca. 10	100 250	min. 7,9 6,4-6,6	250 650	0,9-1,0 7,4-8,5
ca. 66	11,2 4,0 1450	1190-1200 1250-1280 0 - 1,0				3a	400-460 = 2,0		1200	8,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5b) (5a)		Starting fuel delivery idle switching point (6)		Torque-control travel Control rod travel mm (5)	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA 1150	0,9 bar 169,0 - 171,0 (166,0 - 174,0)	1190-1200*	LDA 1150	0 bar 131,0-135,0 (128,0-138,0)	100	200,0-230,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

F12

F12

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure
 XXXXXXXX

STE 10,0 d 1 - 2 -

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
157 + 140 R	0,38	0,90 0,30 0	12,2 - 12,3 11,7 - 11,8 10,9 - 11,1 10,7 - 10,8

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 m

6. Edition

En

PE 6 P 110 A 320 RS 273 RQV 250-1100 PA 530
.. RS 273-1
Komb.-Nr. 0 401 846 440

supersedes 11.82
company: Volvo
engine: TD 100 B
220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,0+0,1	14,8-15,1	0,4(0,75)			2,5 ± 0,1
250	5,1-5,3	1,1-1,5	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1160	15,2-17,8	-	-	-	ca. 11	100	min. 6,7	200	0,7-0,9
ca. 40	9,0 4,0 1350	1140-1150 1225-1255 0-1,0					250 310-370 = 2,0	5,1-5,3	500	2,9-3,3
									800	4,9-5,1
									1100	7,1

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 147,5-150,5 (145,0-153,0)	1140-1150*	LDA 700	0 bar 111,0-115,0 (108,0-118,0)	100	160,0-180,0 = 12,0-12,5 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

VOL 10,0 m

- 2 -

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS273 U..RS273-1 Ü RQV..PA530	0,70	0 0,40 0,20	10,0-10,1 8,2-8,3 9,6-9,7 8,7-8,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 f 2

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 273 Y RQV 250-1100 PA 238/2 R
..RS 273-1 Y
0 401 846 379

supersedes 0.81
company Volvo
TD 100 B
engine 220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6 - 2,7 mm (from BDC)
(2,55-2,75)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,0+0,1	14,8 - 15,1	0,4(0,8)			
250	5,1-5,3	1,1 - 1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1260	15,2-17,8	-	-	-	ca. 11	100 250	min. 6,6 5,1-5,3	350 600 1290	1,7-2,3 3,7-4,3 8,8
ca. 40	9,0 4,0 1350	1140-1150 1225-1255 0 - 1,0				3a	310-370=2,0 mm			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm RW	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 147,5 - 150,5 (145,0 - 153,0)	1140-1150*	LDA 700	0 bar 111,0-115,0 (108,0-118,0)	100	20,5-21,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 f 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Punip/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 273 Y + ..PA 238/2R	0,7		10,0 - 10,1
		0	8,2 - 8,3
		0,40	9,6 - 9,7
		0,20	8,7 - 8,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,8h

2. Edition

En

Testoil-ISO 4113

 PE 6 P 100 A 720 RS 279
 Komb.-Nr. 0 401 846 442

ROV 300-1100 PA 550

supersedes 10.80

company Daimler Benz

engine OM 355

177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		(2,75-2,95)		mm (from EDC) 9,0 12,0 mm		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,7	11,7 - 11,9	0,3(0,5)			
	+0,1					
300	8,0-8,2	1,5 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	mm	4	5	6	7	8	9	10	11
		mm						mm		
		rev/min						mm		
		mm						mm		
max.	1100	15,2-17,8				ca. 12	100	min. 9,5	300	1,4-1,5
ca. 63	11,7	1140-1150					300	8,0-8,2	450	2,7-3,0
	4,0	1210-1240							1150	8,7
	1350	0 - 1,0				330-430				
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational speed		Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop		limitation		high idle speed		idle switching point		travel	
Test oil temp. 40°C (104°F)		intermediate speed							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1100	117,0-119,0 (115,0-121,0)	1140-1150*				100	140 - 160		
						100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

F18

F18

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 14,9 b

2. Edition

En

Testoil-ISO 4113

PES 8 P 110 A 320 RS 336

RQV 275-1150 PA 625

supersedes 82

company: RVI

engine: MIVS 083530

Komb.-Nr. 0 402 048 035

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 - 2,9
(2,75-2,95)

mm (from BDC) Zyl. 5; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	13,1+0,1	15,9 - 16,1	0,4 (0,75)			
275	4,5-4,7	1,6 - 2,2	0,45 (0,75)			

Adjust fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 11	100	min. 6,1	225	0,8-1,1
ca. 65°	10,4 4,0 1450	1205-1215 1325-1355 0 - 1,0				290-405	275	4,5-4,7	535 840 1150	4,1-4,6 6,2-6,4 8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 650	0,7 bar 159,0-161,0 (156,0-164,0)	1205-1215 *	LDA 1150	0,7 bar 118,0-121,0 (115,0-124,0)	100	175,0-195,0	1150 650 850 1000	11,3+0,1 13,1+0,1 12,6+0,2 11,8+0,3
			LDA 500	0 bar 117,0-119,0 (114,5-121,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

D. Adjustment Test for Manifold Pressure Compensator

RVI 14,9 b

- 2 -

Test at n =

500

rev/min decreasing
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES8P..RS336 + ..PA625	0,7	0 0,28 0,23	13,1 - 13,2 11,3 - 11,4 12,6 - 12,7 11,6 - 11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 1 3

2. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS 360 RQ 300/1100 PA 376 DR
Komb.-Nr. 0 402 046 165

6 - 2 - 4 - 1 - 5 - 3
0 -60 -120-180-240-300° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 8.81

company: MAN

engine: D 2566 MTUM

(206 kW) 280 PS - Nr. 7909

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Zyl.6; RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,3-13,4	16,1 - 16,3	0,4(0,8)			
300	7,4-7,6	0,9 - 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm 2		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	12,3	1145-1160	300	7,6	100	min.7,5	1100	13,3-13,4
VH = max. 46°				4,0	1215-1245			300	5,9-6,1	700	13,9-14,0
				1350	0 - 1,0			360-400	= 2,0	910	13,5-13,7

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 161,0 - 163,0 (158,0 - 166,0)			LDA 500	0,2 bar 124,0 - 128,0 (121,0 - 131,0)	100	215,0 - 235,0
LDA 700	0,7 bar 171,0 - 175,0 (168,0 - 178,0)			LDA 500	0 bar 117,0 - 119,0 (114,0 - 122,0)	100-170 (80-190)	

Checking values in brackets

7.83

F21

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F21

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 1 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXX.

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod mm Adjustment reference XXXXXXX
360 + 376 DR	0,7	0,47 0,20 0	13,9-14,0 13,7-13,8 12,0-12,2 11,7-11,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 110 A 720 LS 375

RQ 250/1050 PA 335 DR

Komb.-Nr. 0 402 046 183

supersedes-

company: MAN

engine: D 2566 MTF
202 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC Zyl. 6; RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,3+0,1	15,0-15,2	0,4(0,8)			
250	7,0-7,2	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications rev/min 6		Test specifications rev/min 10		Test specifications rev/min 9		Test specifications rev/min 10		Control rod travel mm 12	
600 VH = 19,2-20,8 max. 46°		600 20,0 11,3 4,0 1300		1095-1110 1155-1185 0-1,0		250 7,1 100 min. 8,7 250 7,0-7,2 360-400 = 2,0		1050 12,3-12,4 700 13,0-13,1 850 12,8-13,0 950 12,4-12,7			

Torque-control travel
on flyweight assembly dimension a = 0,2 mmSpeed regulation: At 1095-1110 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes / mm 7	
LDA 1050	0,7 bar 150,0-152,0 (147,5-154,5)	-		LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)			LDA 500	0 bar 111,0-113,0 (108,0-116,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 12 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..LS375 + RQ..PA335DR	0,70	0 0,32 0,20	13,0-13,1 10,9-11,0 12,8-13,0 11,4-11,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 3

2. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS375 RQV 250-1100 PA276DR
Komb.-Nr. 0 402 046 193

supercedes
MAN - Nr.7082
company
D2566 MTE
engine
(220kW - 299PS)
Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10
(2,95-3,15) mm (from BDC) cyl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	3,1-13,2	15,9 - 16,1	0,4(0,8)			
250	7,3-7,5	1,1 - 1,7	0,4(0,7)			
500/700	- - -	C, 4-5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca.13	100	min.8,9	250	1,2-1,4
							250	7,3-7,5	600	3,8-4,2
							360-420	=2,0	140	8,0
ca.50	12,1	1140-1150				3a				
	4,0	1190-1220								
	1350	0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	159,0-161,0 (156,0-164,0)	1140-1150*	750	160,0-164,0 (157,0-167,0)	100	215,0-235,0	1100	3,1+0,
			500	164,0-168,0 (161,0-171,0)			500	3,4+0,
							750	3,3+0,
						100-170 (80-190)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

G1

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Test Specifications

Fuel Injection Pumps ②

and Governors

WPP 001/4 MAN 11,1 q
6. Edition

En

PES 6 P 110 A 720 LS 375 RQ 250/1100 PA 335 DR
Komb.-Nrn. 0 402 046 179, 0 402 046 211,
0 402 046 175

supersedes 8.81
company: MAN
engine: D 2566 MT(F)
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC Zyl. 6; RW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,7-14,9	0,4(0,8)			
250	7,3-7,5	1,0-1,6	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH =	19,2-20,8 max. 46°	600	20,0	11,4 4,0 1350	1145-1160 1190-1220 0-1,0	250	7,4	100 min. 8,9 250 7,3-7,5 355-395 = 2,0		1100 700 940 1015	12,4-12,5 13,3-13,4 12,9-13,1 12,5-12,8

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation: AI 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 147,0-149,0 (144,0-152,0)	-	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 111,0-113,0 (108,0-116,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P...LS375 + RQ...PA335DR	0,32	0,70 0 0,20	12,6-12,7 13,3-13,4 11,3-11,4 11,8-12,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1q5

2 Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS 375 RQV250-1050 PA 373 DR
 Komb.-Nr. 0 402 046 210
 6 - 2 - 4 - 1 - 5 - 3
 0 -60 -120-180-240-300 $\pm 0,50$ (0,75)

supersede 2.80

company: MAN

engine: D2566 MTF
 202,3 kW(275 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) $\frac{Zyl. 6}{Zyl. 6}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,0-12,1	14,8 - 15,0	0,4(0,8)			
250	6,8-7,0	1,1 - 1,7	0,4(0,7)			
700/500	-	C, Sp. 4 u. 5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 16	100	min. 8,5	300	1,0-2,0
ca. 67	11,1 4,0 1400	1090-1100 1205-1235 0 - 1,0					250	6,8-7,0	600	4,0-4,2
							520-580=2,0		100	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	0,7 bar 148,5-150,5 (146,0-153,0)	1090-1100*	LDA 500	0,2 bar 124,0-128,0 (121,0-131,0)	100	215,0-235,0 (211,0-239,0)	1100	2,0-12,1
700	153,0-157,0 (150,0-160,0)		LDA 500	0 bar 111,0-113,0 (108,0-116,0)	250	11,0-17,0	850	2,2-12,4
					100-70(80-190)		700	2,6-12,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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G4

G4

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 5 - 2--

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
375 + 373 DR	0,70	0,32 0,20 0	12,6 - 12,7 12,3 - 12,4 11,4 - 11,6 10,9 - 11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps and Governors

 WPP 001/4 MAN 11,1 q 8
2. Edition

En

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 508

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes 11.82
MAN
company: D 2566 MKF
engine: 235 kW (320 PS)
Komb.-Nr. 0 402 046 276
0 402 046 207

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC) Zyl. 6 - RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15,2-17,8	-	-	-	ca.11	100	min.7,9	200	0,6-0,8
ca.64	10,3	1140-1150					250	6,3-6,5	500	4,3-4,5
	4,0	1220-1250					385-445	= 2,0	800	5,9-6,1
	1350	0 - 1,0							1100	8,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed	Fuel delivery characteristics		Starting fuel delivery		Torque-control	
rev/min	cm ³ /1000 strokes	limitation intermediate speed	high idle speed	idle speed	idle switching point	cm ³ /1000 strokes	travel	Control rod travel
1	2	3	4	5	6	7	8	9
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)	1140-1150*	LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)	100	205,0-225,0	1100	11,3+0,1
LDA 1100	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0 bar 101,0-104,0 (98,0-107,0)			750	13,1+0,1
							860	12,6+0,2
							985	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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G6

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 8

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 + RQV.. PA 508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4-9,5 12,5-12,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 13

1. Edition

En

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 671
Komb.-Nr. 0 402 046 274, 0 402 046 275

supersedes
company: MAN
engine: D 2566 MK(F)
206 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC Zyl. 6)
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,4+0,1	17,7-18,1	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11
max.	1140	15,2-17,8		-	-	-		ca. 11	100	min. 7,8		300	1,5-1,8
ca. 63	9,2 4,0 1350	1140-1150 1205-1235 0-1,0							250	6,2-6,4		850	5,8-6,0
									385-445=2,0			1100	8,1
								③a					

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 750	0,7 bar 177,0-181,0 (174,0-184,0)	1140-1150*	LDA 500	0,31 bar 134,0-140,0 (131,0-143,0)	100	215,0-235,0 (211,0-239,0)	750	11,4+0,1
LDA 1100	0,7 bar 166,0-172,0 (162,5-175,5)		LDA 500	0 bar 102,0-106,0 (99,0-109,0)			1100	10,2+0,1
							860	11,0+0,2
							990	10,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 13

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 388 + RQV..PA 671	0,70	0 0,31 0,43	11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g2

1. Edition

En

PE 6 P 110 A 320 RS 413 X RQV 250-1200 PA 499
Komb.-Nr. 0 401 846 470

supersedes-

company: Volvo

engine: TD 70 FC

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1

(2,95-3,15)

mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	12,7-12,9	0,4(0,8)			2,5 ⁺ 0,1
250	5,2-5,4	1,6-2,0	0,3(0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min.6,7	200	0,6-0,8
ca. 62	11,4	1240-1250					250	5,2-5,4	530	3,1-3,5
	4,0	1370-1400					440-500	=2,0	870	5,6-5,9
	1500	0-1,0							1200	7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 126,5-128,5 (123,5-131,5)	1240-1250*	LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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G10

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D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

VOL 7,0 g 2

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 413X +RQV..PA 499	0,56	0,90 0 0,33	12,0-12,1 12,4-12,5 9,9-10,0 10,7-10,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 6 P 120 A 320 RS 421 RQV 300 - 1500 PA 500

Komb.-Nr. 0 401 846 441

 Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 5.81

company: Breda

engine ID 32/6

A. Fuel Injection Pump Settings

 Port closing at prestroke $3,5 - 3,6$
(3,45-3,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	10,0+0,1	14,6 - 14,9	0,5(0,9)			
300	7,1-7,3	1,4 - 2,0	0,8(1,2)			

 Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel XXXXXXXXXX	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500 1750	15,2-17,8 0 - 1	-	-	-	ca. 14	100 300	min. 8,7 7,1-7,3	200 600 1100 1500	0,8-1,1 3,5-3,7 5,8-6,0 9,1
ca. 62	9,0 4,0	1540-1550 1625-1655				335-450				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rated speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1500	146,0-149,0 (143,0-152,0)	1540-1550*	-	-	100	19,5-21 mm RW	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,4 h

4. Edition

En

PES 6 P 110 A 820 LS 422 RQ 300/1100 PA 327-1

Komb.-Nr. 0 402 046 218

superseded 10.82
company: Daimler-Benz
OM 407
engine: 147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,2-8,4	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	9,6 4,0 1350	1145-1160 1175-1205 0-1,5	300	6,1	100	min.7,5 300 6,0-6,2 350-390=2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	103,0-105,0 (100,0-108,0)	500	500	73,0-77,0 (70,0-80,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 h 2

1. Edition

En

PES 6 P 110 A 820 LS 422

RQ 300/1100 PA 681

Komb.-Nr. 0 402 046 269

supersedes
Daimler-Benz
company OM 407
engine: 147 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,0-8,2	1,4-2,0	0,4(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
600	13,0-14,0	600	13,5	9,6 4,0 1350	1145-1160 1175-1205 0-1,5	300	6,1	100 300 350-390=2,0	min.7,5 6,0-6,2	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2		Control rod travel mm 3a		cm ³ /1000 strokes 5		Control rod travel mm 6b
1100	103,0-105,0 (100,0-108,0)	500		500	78,0-82,0 (75,0-85,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 K 4

1. Edition

En

PE 6 P 110 A 320 RS 423 Z RQV 250-1200 PA 435

Komb.-Nr. 0 401 846 487

supersedes

company Volvo BM

engine: TD 70 G

157 KW (213 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,2+0,1	11,3-11,5	0,4(0,8)			
250	4,5-4,7	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 10	100	min. 6,0	200	1,1-1,4
ca. 65	10,2	1240-1250					250	4,5-4,7	530	3,5-3,7
	4,0	1320-1350							870	5,2-5,3
	1400	0 - 1,0				290-420			1200	7,9

Torque control travel a = mm.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 113,0-115,0 (110,0-118,0)	1240-1250 *	LDA 1000	0,7 bar 114,0-118,0 (111,0-121,0)	100	165,0-195,0 =20,0-21,0 mm RW		
			LDA 700	0 bar 78,0-81,0 (75,0-84,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

Testoil-ISO 4113

G15

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D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0 K 4 - 2 -

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6P..RS423 Z + RQV.. PA 435	0,35	0,70 0 0,26	10,4-10,5 11,2-11,3 9,5-9,6 9,8-10,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 k 1

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 423 RQV 335-1100 PA 435

Komb.-Nr. 0 401 846 446

supersedes 83

company Volvo

engine: TD 70 G

138 kW (188 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1
(2,95 - 3,15)

mm (from BDC)

Rotational speed rev/min. 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	9,9 - 10,1	0,4(0,8)			2,5 ± 0,1
335	4,5-4,7	1,1 - 1,5	0,3(0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 11	100 335 450-510 = 2,0	min. 7,0 4,5-4,7	300 500 800 1100	1,4-1,6 3,2-3,5 5,0-5,2 7,9
ca. 6 4	9,7 4,0 1300	1140-1150 1210-1240 0-1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1140-1150 *	LDA	0 bar	100	150,0-180,0	-	-
700	99,0-101,0 (96,0-104,0)		700	78,0-80,0 (75,0-83,0)	335	11,0-15,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0 k 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 423 + ..PA 435	0,75	0 0,17 0,09	10,7 - 10,8 9,5 - 9,6 10,4 - 10,5 9,8 - 10,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,6 b
2. Edition

2.

En

Testoil-ISO 4113

PES 6 P 110 A 820 RS 424 RQV 275-1300 PA 572
Komb.-Nr. 0 402 046 224

supersedes 5.82
company Unic (IVECO)
engine: 8220-02
148 kW (201 PS)

3.72

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	9,8-9,9	9,3 - 9,6	0,4(0,25)			
275	4,9-5,1	1,5 - 2,0	0,45(0,25)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1330	15,2-17,8	-	-	-	ca. 11	100	min. 6,5	250	1,1-1,3
ca. 60	8,8	1340-1350					275	4,9-5,1	600	3,9-4,1
	4,0	1415-1445							950	5,5-5,7
	1550	0 - 1,0				285-380			1300	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	93,0 - 96,0 (90,5 - 98,5)	1340-1350*	-	-	100	160,0-180,0 (156,0-184,0)	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

G19

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②

Test Specifications Fuel Injection Pumps and Governors

40

 RPP 001/4 MAN 11,4 a 1
1. Edition

En

PES 6 P 120 A 320 LS 429

RQ 250/1100 PA 659

supersedes

company MAN

Komb.-Nr. 0 402 046 264

 engine: D 2566 MKUL
235 kW (320 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 3,0-3,1
(2,95-3,15)

mm (from BDC) Zyl. 6 - RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,0+0,1	22,0-22,4	0,5(0,9)			
250	7,5-7,7	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH = 46°	19,2-20,8	600	20,0	11,5 4,0 1300	1145-1160 1190-1220 0 - 1,0	250	7,6	100 250 355-395 = 2,0	min. 9,1 7,5-7,7	1100 750 925 1005	12,5-12,6 14,0-14,1 13,7-13,9 12,8-13,1

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 750	1,0 bar 220,0-224,0 (217,0-227,0)	-	LDA 500	0,29 bar 138,0-144,0 (135,0-147,0)	100	215,0-235,0
LDA 1100	1,0 bar 185,0-191,0 (182,0-194,0)		LDA 500	0 bar 115,0-119,0 (112,0-122,0)		

Checking values in brackets

7.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 a 1 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6 P.. LS 429 + RQ .. PA 659	1,0	0 0,29 0,58	14,0-14,1 10,8-10,9 11,7-11,8 13,4-13,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 a 2

1. Edition

En

PES 6 P 120 A 320 LS 429 RQV 250-1100PA 676

Komb.-Nr. 0 402 046 285

supersedes

company: MAN

D 2566 MKUL

engine: 235 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Zyl. 6

Port closing at prestroke $3,0 - 3,1$
(2,95-3,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,0+0,1	22,0-22,4	0,5(0,9)			
250	7,5-7,7	1,2-1,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 13	100	min. 9,1	300	1,5-1,7
ca. 64	11,5	1140-1150					250	7,5-7,7	800	5,4-5,6
	4,0	1230-1260							1100	8,1
	1350	0 - 1,0				385-510				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 220,0-224,0 (217,0-227,0)	1140-1150*	LDA 500	0,29 bar 138,0-144,0 (135,0-147,0)	100	215,0-235,0 (211,0-239,0)	750	14,0+0,1
LDA 1100	1,0 bar 185,0-191,0 (182,0-194,0)		LDA 500	0 bar 115,0-119,0 (112,0-122,0)			1100	12,5+0,1
							860	13,6+0,2
							985	12,8+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

- 2 -

MAN 11,4 a 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 429 + RQV..PA 676	1,0	0	14,0 - 14,1
		0,29	10,8 - 10,9
		0,58	11,7 - 11,8
			13,4 - 13,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES5P110A820 LS 434

RQ300/1100 PA 327-4

supersedes 1.83

company: Daimler-Benz

Komb.-Nr. 0 402 045 023

engine: OM 409

135 kW (184 PS)

1 - 3 - 5 - 4 - 2 je 72° ±0,50° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC) 1. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 5
1100	10,4+0,1	11,0-11,2	0,4(0,8)			
300	7,0-7,2	1,2 - 1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11 Control rod travel mm 12	
600	13,8-14,6	600	14,2	9,4 4,0	1145-1160 1175-1205	300	7,1	100 300 375-415=2,0	min.10,0 7,0-7,2	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
1100	110,0-112,0 (107,5-114,5)	-	-	600	94,0-98,0 (91,0-101,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

①

Test Specifications

Fuel Injection Pumps ①

and Governors

WPP 001/4 MB 9,5 a 3
2. Edition

En

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594-1

Komb.-Nr. 0 402 045 024

1 - 3 - 5 - 4 - 2 je $72^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

supersedes 83

company Daimler Benz

engine OM 409

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1

(2,95-3,15)

mm (from BDC) Zyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,1	11,0-11,2	0,4(0,8)			
300	8,1-8,3	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 34	100	min. 9,5	250	1,0-1,3
ca. 64	10,0	1140-1150					300	8,0-8,2	530	3,9-4,2
	4,0	1175-1205							820	5,5-5,8
	1300	0 - 1,0				320-435			1100	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	110,0-112,0 (107,0-115,0)	1140-1150*	600	90,0-94,0 (88,0-96,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 327-2
Komb.-Nr. 0 402 046 228

supersedes 1.83
company Daimler-Benz
OM 407 h
engine 177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,2 - 3,3$ mm (from BDC) Zyl. 6
(3,15-3,35)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5 - 12,7	0,4(0,8)			
300	7,7-7,9	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	10,3 4,0 1350	1145-1155 1180-1210 0 - 1,5	300	7,8	100 300	min. 9,4 7,7-7,9 2,0 mm	-	-

Torque-control travel on flyweight assembly dimension a = mm
Speed regulation: At 1145 - 1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1100	123,0 - 127,0 (122,0 - 130,0)	-	600	110,0 - 114,0 (107,0 - 117,0)	100	130,0 - 150,0

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 327-5
Komb.-Nr. 0 402 046 234

superseded 6.82
company: Daimler-Benz
engine: OM 407
162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0±0,1	11,7-11,9	0,4(0,8)			
300	7,3-7,5	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	10,0 4,0 1300	1145-1160 1180-1210 0-1,0	300	7,4	100 300 365-405	min.8,7 7,3-7,5 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	117,0 - 119,0 (114,0 - 122,0)	500	600	101,0 - 105,0 (98,0 - 108,0)	100	130,0 - 150,0 (126,0 - 154,0)

Checking values in brackets

7,83

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,4 1 7

1. Edition

En

PES 6 P 110 A 820 LS 442

RQ 300/1100 PA 681-1

Komb.-Nr. 0 402 046 290

supercedes--

company: Daimler-Benz

engine: OM 407 h
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,2-3,3
(3,15-3,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5-12,7	0,4(0,8)			
300	7,7-7,9	1,3-1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4				Test specifications Control rod travel mm 8				Control rod travel mm 12	
600		13,0-14,0				13,5				-	
		10,3 4,0 1350				1130-1140 1165-1195 0-1,5				-	
						300					
						7,8					
						100 300 365					

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 1130-1140 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
1100		-		600		100	
125,0-127,0 (122,0-130,0)				110,0-114,0 (107,0-117,0)		130,0-150,0 (126,0-154,0)	

Checking values in brackets

7.83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 10,3 a

1. Edition

En

PE 6 P 110 A 720 RS 453

RQV 425-1000 PA 438-1

Komb.-Nr. 0 401 846 475

supersedes

company: Unic-IVECO

engine: 8205-03-500

129 kW (175 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,0+0,1	9,9-10,1	0,4 (0,8)			
425	6,9-7,1	2,1-2,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1160	15,2-17,8	-	-	-	ca. 15	100	min. 8,5	400	1,5-1,6
ca. 55	9,0 4,0 1300	1040-1050 1150-1180 0-1,0				425 420-515	425	6,9-7,1	600 800 1000	3,7-4,3 5,8-6,1 7,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	99,0-101,0 (96,0-103,0)	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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H5

H5

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 9,6 a
8. Edition

En

Testoil-ISO 4113

PE 6 P 100 A 320 LS 805

RQ 300/1250 PA 187 R (1)

supersedes 10.80
company: Daimler Benz
engine: OM 401

RQV 300-1250 PA 227 R (2)

6 - 3 - 5 - 2 - 4 - 1
0 -45 -120-165-240-285 $\pm 0,5^{\circ}(\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(3,40-3,50)$ mm (from BDC) Zyl. 6
 $(3,35-3,55)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,0+0,1	10,6 - 10,8	0,3(0,6)			
300	7,9-8,1	1,9 - 2,5	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ..187 R (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,8-14,6	650	14,2	10,0	1295-1310	300	8,0	100	min. 9,5	1250	11,1-11,2
1450	0 - 1			4,0	1330-1360			300	7,9-8,1	600	11,1-11,3
								420-500	=2,0 0 - 1		

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
(1) 1250	107,0 - 109,0 (105,0 - 111,0)	600		600	85,0 - 90,0 (83,0 - 92,0)	100	110 - 130
						1355	Streug. max.4 (6)

Checking values in brackets

7.83

H6

H6

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B. Governor Settings

RQV..227 R (2)

MB 9,6 a

- 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 12	100 300	min.9,5 7,9-8,1		
ca. 66	10,0 4,0 1450	1290-1300 1330-1360 0 - 1,0				325-450 (3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)	Starting fuel delivery Idle switching point (6)	Torque-control travel (5)			
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(2) 1250	106,0-108,0 (104,0-110,0)	1290-1300*	600	83,0 - 88,0 (80,0 - 92,0)	100	110 - 130 100-250 (80-270)		

Checking values in brackets

- * 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing
 increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm

En

H7

47

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 16,0 i

4. Edition

En

PE 10 P 100 A 320 LS 811 RQV 300-1250 PA 227 R

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

supersede 2.83

company: Daimler-Benz

engine: OM 403

Komb.-Nr.

0 401 849 136

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,4-3,5 mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	10,0-10,2	0,3(0,6)			
300	7,4-7,6	1,8-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 12	100 300	min. 9,0 7,4-7,6	250 580 920 1250	0,7-1,0 3,4-3,7 5,2-5,6 8,0
ca. 66	9,3 4,0 1450	1290-1300 1330-1360 0 - 1,0				350-550 3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤b ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	100,0-102,0 (98,0-104,0)	1290-1300 *	600	78,0-83,0 (76,0-85,0)	100	120,0-140,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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H8

H8

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 i

2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 320 LS830 RQ 1150 PA310R

Komb.-Nr. 0 401 840 050

supersedes 78

company Daimler-Benz

engine OM 404 A

386kW - 525PS

12 - 1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7
0 -45 -60 -105-120-165-180-225 -240 -285-300-345⁰

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,30) mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery m.310R(1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,9 +0,1	14,0 - 14,2	0,4(0,8)			
300	8,0-8,2	1,1 - 1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 26	11,9 5,9 1300	1160-1165 1205-1215 0 - 1							1160	5,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	140,0-142,0	1160-1165			100	110,0-130,0		
					1210	5,8-6,0mmRW Streug.max.6(9)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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H9

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 19,1i2

2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 320 LS 830 RQ 1100 PA 440 R
 Komb.-Nr. 0 401 840 070
 12 - 1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7
 0 -45 - 60-105-120-165-180-225 -240 -285-300-345 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 3.81
 company Daimler-Benz
 OM 404
 engine 320 kW (435 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,35) mm (from BDC) Zyl. 12 ; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,7+0,1	13,1 - 13,3	0,4(0,8)			
300	7,3-7,5	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,7 6,3	1120-1125 1160-1170	-	-	-	-	-	-
1300	0 - 1,0										

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: 1120 - 1125 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1030	131,0 - 133,0 (128,0 - 136,0)	-	-	-	100	130,0 - 150,0 (126,0-154,0)

Checking values in brackets

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H10

H10

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 d

3. Edition

3.

En

Testoil-ISO 4113

PE 12 P 110 A 520 LS 839

RQV 250-1150 PA 439 R

supersedes 282

company: MAN

engine: D 2542 MTE

386 kW (525 PS)

Komb.-Nr. 0 401 840 057

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12

0 -15 -60 -75 -120 -135 -180 -195 -240 -255 -300 -315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 3,0 - 3,1 \\ (2,95 - 3,15) \end{matrix}$ mm (from BDC) Zyl. 12; RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	14,3 - 14,5	0,4(0,8)			
250	6,8-7,0	1,4 - 2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca.11	100	min. 7,5	200	0,6-0,8
ca.66	11,3 4,0 1450	1190-1200 1320-1350 0 - 1,0					250	5,9-6,1	550	3,5-3,9
							470-530=2,0mm		850	5,8-6,1
									1150	8,1

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 143,0-145,0 (140,0-148,0)	1190-1200 *	LDA 500	0 bar 98,0-102,0 (95,0-105,0)	100	150,0-170,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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HAA

D. Adjustment Test for Manifold Pressure Compensator

MAN 20,9 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 12 P..LS 839 + ...PA 439 R	0,70	0 0,28 0,18	12,3 - 12,4 10,5 - 10,6 11,8 - 11,9 10,8 - 11,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9k
2. Edition
En

Testoil-ISO 4113

PE 12 P 110 A 520 LS 839 RQV 250-900 PA 534

Komb.-Nr. 0 401 840 073

12- 1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7

0-45 -60- 105-120-165-180-225-240-285-300-345° $\pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 80

compaMAN

engine D 2542 MTE

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Zyl. 12
3,00-3,10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,4-11,5	13,0 - 13,2	0,4(0,8)			
250	7,6-7,8	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	900	15,2-17,8	-	-	-	ca. 13	100	min. 9,2	200	0,6-0,8
							250	7,6-7,8	430	2,7-3,0
									670	4,5-5,0
ca. 64	10,4	940-950					535-595	2,0	900	7,9
	4,0	990-1020								
	1150	0 - 1,0								

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	130,0-132,0 (127,0-135,0)	940-950*	-	-	100	19,5-21,0 mm RW	-	-
						100-170(80-190)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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H13

H13

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 b 1

2. Edition

En

PE 10 P 120 A 520/4 LS 850 RQV 250-1150 PA 647

1- 8- 7- 6 - 3 - 5 - 2 - 10- 9- 4

0-27-72-99 -144-171-216-243-288-315° $\pm 0.5^\circ$ ($\pm 0.75^\circ$)

supersedes 83

company: MAN

engine: D 2540 MLE
405 kW

Komb.-Nr. 0 401 849 166

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	18,5-18,8	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 1°	100	min. 7,8	350	2,0-2,5
ca. 63	10,2	1190-1200					250	6,2-6,4	750	5,7-6,0
	4,0	1255-1285					380-440=2,0		1150	3,1-8,2
	1400	0-1,0							1275	9,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④	Starting fuel delivery Idle switching point ⑥ rev/min ⑥	Torque-control ⑤ rev/min ⑧
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	cm ³ /1000 strokes 5	cm ³ /1000 strokes 7	Control rod travel mm 9
LDA 1150	1,0 bar 185,0-188,0 (182,0-191,0)	1190-1200*	LDA 500 0 bar 119,0-122,0 (116,0-125,0)	100 205,0-225,0 (201,0-229,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

MAN 17,4 b 1

-2-

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 10 P..LS 850 +RQV.. PA 647	1,0	0 0,65 0,54	11,2-11,3 9,6-9,7 10,8-10,9 10,0-10,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 11,0 x

1. Edition

En

PE 6 P 110 A 720 RS 3041, I ... Z EP/RSV 350-1100 P 1/310R superseded by
company: Scania
engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,0+0,1	15,7-15,9	0,4 (0,8)			3,3 ± 0,1
350	3,7-3,9	0,7-1,1	0,2 (0,4)			(3,0-3,5)
In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.						

Adjust the fuel delivery from each outlet according to the values in

★★

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1100	16,0	without auxiliary spring			ca. 30	350	6,0	-	-
	1150	11,7					100	min. 19		
	1200	6,0	with auxiliary spring				350	5,7-6,3		
	12,0	1140-1150					400	3,2-4,7		
	4,0	1220-1255					550	0 - 1,0		
2a	1290	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
110	155,0-157,0 (152,0-160,0)	1140-1150 *	600	161,0-165,0 (158,0-168,0)		100	20,5-21,0 mm RW	-	-
						350	9 - 13		
						Dispersion max. 2 (4)			
						★★			

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testoil-ISO 4113

H16

14 16

Increased or reduced outputs of the types listed on page 1

Output variation	Output %	Fuel delivery in cm ³ /1000 strokes at pump speed (min ⁻¹) 1)				Adjustment of control-rod position from 100% setting (mm)
		1100	900	750	600	
P	120	205	208	212	214	+ 2,6
U	115	191	196	198	200	+ 1,9
R	113	186	191	192	195	+ 1,7
W	110	180	185	185	188	+ 1,3
V	108	175	179	179	183	+ 1,0
Y	105	170	173	172	177	+ 0,7
T	103	166	167	166	171	+ 0,4
S	98	154	156	156	158	- 0,2
X	95	146	149	149	150	- 0,5
Q	93	141	145	145	146	- 0,8
Z	90	134	138	139	140	- 1,1
O	88	131	134	136	137	- 1,3
N	85	124	126	130	131	- 1,6
M	80	114	115	119	121	- 2,1
L	75	105	106	108	111	- 2,6
K	70	98	98	98	99	- 3,0
J	65	89	90	90	90	- 3,4
I	60	86	84	83	80	- 3,8

1) Tolerances with fuel quantity are $\pm 1 \text{ cm}^3$ at setting speed.

With subsequent orders from KH/ALP only the standard setting according to page 1 will be delivered. If required, the above mentioned variations are to be carried out through your local BOSCH Service Station.

The delivery amounts given in the table have been compiled from Saab-Scania documentation upon their request.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 d 1

4. Edition

En

PE 6 P 120 A 320 RS 3050

ROV 250-1100 PA 611

supersedes 83

company Volvo

engine TD 120 F

Komb.-Nr. 0 401 846 747

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,4-2,5}{(2,35-2,55)}$ mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	23,8-24,0	0,5(0,9)			2,5 \pm 0,1 (2,2-2,9)
250	3,8-4,0	2,2-2,6	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 7	100	min. 5,3	200	0,7-0,9
ca. 65	12,0 4,0 1350	1160-1170 1225-1255 0 - 1,0					250 290-350=2,0	3,8-4,0	500 660- 1040 1100	4,2-4,8 6,4-6,6 7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	1,2 bar 237,5-239,5 (234,5-242,5)	1160-1170*	LDA 700	0 bar 142,0-144,0 (139,0-147,0)	100	20.0-21,0 mm RW	-	-

Checking values in brackets:

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

VOL 12,0 d 1 -2-

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P ..RS 3050 + RQV.. PA 611	0,67	1,2 0 0,30	12,2-12,3 13,0-13,1 9,2- 9,3 10,5-10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f 4

2. Edition

En

PE6P120A320RS3071Z

RQV 250-1025 PA 371

Komb.-Nr. 0 401 846 766

supersedes .83

company: Volvo

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

engine: TD 120 G/USA

243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6-2,7$
($2,55-2,75$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
700	11,4+0,1	19,6-19,8	0,5(0,9)			2,5 [±] 0,1 (2,2-2,9)
250	5,8-6,0	2,2-2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 12	100	min.7,3	200	0,7-0,9
ca. 42	10,4 4,0 1300	1065-1075 1145-1175 0-1,0					250 310-360=2,0	5,8-6,0 2,0	475 750 1025	2,8-3,1 4,8-5,1 7,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm 9	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 700	0,9 bar 196,0-198,0 (192,0-202,0)	1065-1075*	LDA 700	0 bar 164,0-168,0 (161,0-171,0)	100	240,0-280,0 =RW 20,0 21,0 mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

BOSCH

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H20

H20

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500

rev/min decreasing pressure - in bar gauge pressure
increasing

-2-
VOL 12,0 f 4

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS3071Z + RQV.. PA 371	0,45	0,90 0 0,28	11,0-11,1 11,4-11,5 9,9-10,0 10,1-10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps and Governors

40

HPP 001/4

ROL 16,31

3. Edition

3.

En

superseded 2.82
Rolls Royce
company
engine CV8-300G

2.82

Testoil-ISO 4113

PE 8 P 130 A 120 RS 3072

RQ 750 PA 533

RS 3072-1

RQ 750 PA 533

1 - 3 - 6 - 5 - 4 - 8 - 7 - 2 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,50-3,60

mm (from BD) bei RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	31,8 - 32,2	0,5(0,9)			
300	4,9-5,1	3,8 - 4,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,6 3,5 0-1,0	750-755 755-785 900	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
700	318,0-322,0 (315,0-325,0)	-	-	-	-	-

Checking values in brackets

7.83

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H22

1422

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8

3. Edition

En

Testoil-ISO 4113

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549
 Komb.-Nr. 0 401 849 703
 1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2
 0-27-72-99-144-171-216-243-288-315 ° $\pm 0,5$ ° ($\pm 0,75$ °)

supersedes 1.83

company KHD

engine: BF 10L 413 F
 265 kW (360 PS)
 bei 2050 min⁻¹
 bzw. 259 kW (352 PS)
 (Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6 \pm 0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1220	15,2-17,8	-	-	-	ca. 24	100 300 465-525 = 2,0	min. 8,4 6,9-7,1	250 550 1150	
ca. 64	9,7 4,0 1400	1190-1200 1270-1300 0 - 1,0				3a				

Torque control travel $s =$ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200 *			100	110,0-140,0	1150 1025 875 800	10,7 \pm 0,2 10,9 \pm 0,2 11,4 \pm 0,2 11,6 \pm 0,1
			LDA 500	0 bar 85,0-89,0 (82,0-92,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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H23

H23

D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 f

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 10 P..LS 3073 RQV.. PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 d

2. Edition

En

Testoil-ISO 4113

 PE 12 P 110 A 920 LS 3060 RQV 300-1250 PA 576 KR
 Komb.-Nr. 0 401 840 702

supersedes 9.82

company: KHD

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

engine: BF 12 L 413 FC

0 - 45 - 60 - 105 - 120 - 135 - 180 - 225 - 240 - 285 - 300 - 345° $\pm 0,5^\circ (+0,75^\circ)$ 386 kW bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,8 - 2,9}{(2,75 - 2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0 \pm 0,1	15,2 - 15,6	0,4 (0,8)			
300	7,0-7,2	1,8 - 2,4	0,7 (1,0)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,3-0,6
ca. 63	11,0 4,0 1550	1290-1300 1390-1420 0 - 1,0					300	6,7-6,9	580 920 1250	3,5-3,7 5,3-5,5 8,3
						350-500 ③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,85 bar 152,0-156,0 (150,0-158,0)	1290-1300*	LDA 850	0,85 bar 136,0-140,0 (133,0-143,0)	100	130,0-1 0,0 bei 13,0-13,2 mm RW	1250 650 500	12,0 \pm 0,1 11,2 \pm 0,2 11,0 \pm 0,2
			LDA 500	0 bar 77,0 - 79,0 (73,0 - 83,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P.. LS 3060 + .. PA 576 KR	0,85	0 0,55 0,29	11,1 - 11,2 9,1 - 9,2 11,0 - 11,1 9,4 - 9,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o2

2. Edition

En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1100 PA 589

Komb.-Nr. 0 401 846 769

superseded 2.82

company: Volvo

engine: TD 100 F

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1

(2,95 - 3,15)

mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			2,5 ± 0,1
250	3,8-4,0	1,7 - 2,1	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 8	100	min. 5,3	200	0,7-0,9
ca. 63	11,7	1160-1170					250	3,8-4,0	500	4,2-4,8
	4,0	1235-1265					305-365	= 2,0	600	6,4-6,6
	1350	0 - 1,0				③a			bis 1040	
									1100	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min cm ³ /1000 strokes		Starting fuel delivery idle switching point ⑥ rev/min cm ³ /1000 strokes		Torque-control travel ⑤ rev/min Control rod travel mm	
1	2	3	4	5	6	7	8	9
LDA	0,75 bar	1160-1170*	LDA	0 bar	100	150,0-200,0	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		= 20,0-21,0 mm RW		
			LDA	0 bar				
			700	130,5-133,5 (127,5-136,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 o 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P .. RS 3080-1 + RQV .. PA 589	0,42	0,75 0 0,26	12,0 - 12,1 12,7 - 12,8 9,9 - 10,0 10,8 - 11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K 1

1. Edition

En

PE 8 P 120 A 320 LS 3807 RQV 300-1150 PA 545-1
1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes

company Daimler-Benz

engine: OM 422 LA

276 kW

Komb.-Nr. 0 401 848 754

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$
(3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 11	100	min. 6,5	300	1,6-1,8
ca. 65	11,0	1190-1200					300	4,8-5,0	800	4,6-5,0
	4,0	1235-1265							1200	8,4-8,7
	1400	0-1,0				320-460			1265	9,6-10,3
						③a				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 182,0-184,0 (179,0-187,0)	1190-1200*	LDA 750	0,7 bar 195,0-198,0 (192,0-201,0)	100	140,0-160,0 (136,0-164,0)	1150	12,0+0,1
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)			750	12,4+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

J5

J5

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D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 K 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8P..LS3807 + RQV..PA545-1	0	0,40 0,55	10,5-10,7 11,1-11,4 12,2-12,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 110 A 320 LS 3820 RQ 900 PA 634

Komb.-Nr. 0 401 840 706

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company: Daimler-Benz

engine: OM 424

288 kW (392 PS)

Generator

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

1,0-4,1

mm (from BDC)

(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
880	12,6 \pm 0,1	12,0-12,2	0,4(0,8)			
300	8,2-8,4	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	11,6 4,0 1050	900-905 947-957 0-1,0	-	-	-	-	-	-

Torque-control travel

on flyweight assembly dimension a = mm

Speed regulation: At 900-905 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
880	120,0-122,0 (117,0-125,0)	-	-	-	-	100	130,0-150,0

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 110 A 320 LS 3820 RQ 750 PA 636

Komb.-Nr. 0 401 840 707

1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7- 12
0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes :

company: Daimler-Benz

engine: OM 424

247 kW (336 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BD) γ 1. 12; RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8 \pm 0,1	12,5-12,7	0,4(0,8)			
300	8,2-8,4	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 900	750-755 790-800 0-1,0	-	-	-	-	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

750-755 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	Control rod travel mm 3a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
700	125,0-127,0 (122,0-130,0)	-	-	-	-	100	130,0-150,0

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11,0 u 4

4. Edition

En

PE 6 P 120 A 720 RS 7001 RSV 350-1100 P 1/481

supers 40s. 82

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

company: Saab-Scania

engine: DS 1140, 41, 42

DSI11 40, 44

Komb.-Nr. 0 402 676 800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ab FD 141: 5,0-5,1 mm (from BDC) bis FD 052: 4,4-4,5 mm (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2+0,1	19,9 - 20,1	0,6(0,9)			3,3 ± 0,1
350	4,4-4,6	1,3 - 1,7	0,3(0,6)			(3,0 - 3,5)**

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 26	350	4,0	-	-
ca. 64 ⑤	x = 5,5									
	12,2	1090-1100					350	4,4-4,6		
	4,0	1170-1200					450-510	2,0		
	13 0	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
700	199,0-201,0 (196,0-204,0)	1090-1100*		1000	193,0-201,0 (191,0-203,0)	100	240,0-290,0 = 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u

4. Edition

En

PE 6 P 120 A 720 RS 7001 RQV 200-1000 PA 539

supersedes 9.82

company Scania

DS 11 15

engine Komb.-Nr. 0 402 646 801

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

to FD 052: 4,40-4,50

(4,35-4,55)

from ab FD 141: 5,0-5,1

Port closing at prestroke

(4,95-5,15)

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2±0,1	19,9-20,1	0,6(0,9)			3,3±0,1 **
225	4,4-4,6	1,3-1,7	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the initial spring tension
with a new delivery-valve holder must be adjusted to 3,0-3,1 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 62	12,2	1040-1050					225	4,4-4,6	430	3,0-3,5
	4,0	1150-1180					310-370=2,0		720	5,0-5,2
	1300	0-1,0				3a			1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0	-	-
700	199,0-201,0 (196,0-204,0)		1000	193,0-201,0 (191,0-203,0)		bei 20,0 - 21,0 mm RW		
			LDA	0 bar				
			500	160,0-164,0 (158,0-166,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 7001 + ..PA 539	0,42	0,90 0 0,29	12,8 - 12,9 13,2 - 13,3 11,6 - 11,7 11,9 - 12,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u8
2. Edition

En

PE 6 P 120 A 720 RS 7001 RQV200-1000 PA 612

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

superseded 0.82

company: Scania

engine: DN 11 06, 07

BUS-Motor

Komb.-Nr. 0 402 646 807

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5 mm
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,3+0,1	15,7-15,9	0,6(0,9)			3,3 [±] 0,1 (3,0-3,5) **
225	4,4-4,6	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0-3,1 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 59	10,3 4,0 1250	1040-1050 1125-1145 0-1,0					225 310-370=2,0	4,4-4,6	430 720 1000	3,0-3,5 5,0-5,2 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	157,0-159,0 (154,0-162,0)	1040-1050*	1000	154,0-162,0 (152,0-164,0)	100	220,0-270,0 = 20,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u 9

En

1. Edition

PE 6 P 120 A 720 RS 7001 S RQV 200-1050 PA 539

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

superseded by 181

company Saab-Scania

engine: DS 1115

Komb.-Nr. 0 402 646 802

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $5,0-5,1$ mm (from BDC) = RW $9,0-12,0$ mm
($4,95-5,15$)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	19,4-19,6	0,6(0,9)			3,3 [±] 0,1
225	4,4-4,6	1,3-1,7	0,3(0,6)			(3,0-3,5) * *

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,7
ca. 59	12,0	1090-1100					225	4,4-4,6	450	3,3-4,0
	4,0	1220-1250					310-370	=2,0	750	5,3-5,5
	1400	0-1,0							1050	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high id ³ speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 194,0-196,0 (191,0-199,0)	1090-1100*	LDA 10 0	0,9 bar 189,0-197,0 (187,0-199,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-
			LDA 500	0 bar 160,0-164,0 (158,0-166,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u 9 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P .. RS 7001s +RQV .. PA 539	0,90	0 0,42 0,29	13,0-13,1 11,6-11,7 12,8-12,9 11,9-12,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

Test Specifications

Fuel Injection Pumps ②

and Governors

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7001 RQ 200/1000 PA 615

superseded 6.82

company: Scania

engine: DN 1106, 07

Komb.-Nr. 0 402 646 808

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (4,95 - 5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,3+0,1	15,7 - 15,9	0,6(0,9)			3,3 ± 0,1
225	4,4-4,6	1,1 - 1,5	0,3(0,6)			(3,0 - 3,5) ..

 Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2				rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
600	15,6-16,4	600	16,0	10,3 4,0 1200	1045-1060 1090-1120 0 - 1,0	225	4,1	100 225 300-340 = 2,0	min. 5,9 4,4-4,6	-	-

 Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
600	157,0-159,0 (154,0-162,0)	-		1000	154,0-162,0 (152,0-164,0)	100	220,3-270,0 / 20,0-21,0 mm RW

Checking values in brackets

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 3,0-3,1 mm

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11,0u3
2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7001 RQ 250/1000 PA 616

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 5.81

company Scania

engine DS 11 15

Komb.-Nr. 0 402 646 809

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1 mm (from BDC) bis FD 052: (4,35-4,55) 4,4 - 4,5 mm
Port closing at prestroke (4,95-5,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	19,9 - 20,1	0,6 (0,9)			3,3 ± 0,1 **
225	4,4-4,6	1,3 - 1,7	0,3 (0,6)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	12,2 4,0 1200	1045-1060 1115-1145 0 - 1,0	225	4,5	100 225 300-340=2,0mm	min. 5,9 4,4-4,6	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 1045 - 1060 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
LDA 700	0,9 bar 199,0 - 201,0 (196,0 - 204,0)	-	LDA 1000	0,9 bar 193,0 - 201,0 (191,0 - 203,0) LDA 0 bar 160,0 - 164,0 (158,0 - 166,0)	100	240 - 290 = 20-21 mm RW

Checking values in brackets

B Governor Settings

SCA 11,0u3

- 2 -

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		3a		3b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm	Control rod travel
1	2	3	4	5	6	7	

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 7001 + .. PA 616	0,90	0,42 0,29 0	13,2 - 13,3 12,8 - 12,9 11,9 - 12,1 11,6 - 11,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (maximum full-load control rod travel)

ER*

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,2 c

2. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/484
1 - 2 - 7 - 3 - 4 - 5 - 6 - 2 je 45°^{+0,5°}(^{+0,75°})

supersedes 5.81
company Saab-Scania
engine DS 14 40, 42
DSI 14 40, 41
Komb.-Nr. 0 402 678 800

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

bis FD 052: 4,4-4,5 mm
(4,35-4,55)

Port closing at prestroke

(4,95-5,25)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2 ^{+0,1}	18,7-18,9	0,6(0,9)			3,3 ^{+0,1}
350	4,4-4,6	1,4-1,3	0,3(0,6)			(3,0-3,5) * *

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0 x = 5,5	-	-	-	ca. 28	350	4,0	-	-
							350	4,4-4,6		
							430-490	2,0		
ca. 63	12,2	1140-1150								
2a	4,0	1220-1250								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (181,0-193,0)		100	240,0-290,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

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Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 3

3. Edition

En

Testoil-ISO 4113

PE 8 P 120 A 920/4 LS 7002 RQV 250-1000 PA 547

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 9,82

company: Scania

engine: DS 14 06

Komb.-Nr. 0 402 648 801

A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1 bis FD 052: 4,4 - 4,5
Port closing at prestroke (4,95 - 5,15) mm (from BDC) (4,35 - 4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7 - 18,9	0,6(0,9)			3,3 \pm 0,1 (3,0 - 3,5)
225	4,9-5,1	1,0 - 1,4	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 60	12,2	1040-1050					225	4,4-4,6	470	3,3-3,8
	4,0	1150-1180					310-370	2,0	730	5,1-5,3
	1300	0 - 1,0				3a			1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0	-	-
700	187,0-189,0 (184,0-192,0)		1000	183,0-191,0 (181,0-193,0)		bei 20,0-21,0 mm RW		
			LDA	0 bar				
			500	137,0-141,0 (135,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

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J19

J19

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 a 3 - 2 -

Test at n = rev/min decreasing
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod diminution difference XXXXXXXXX (1)
..LS 7002 RQV..PA 547	0,9 bar	0 bar 0,23 bar 0,35 bar	13,2 - 13,3 11,3 - 11,4 11,9 - 12,1 12,8 - 12,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to $3,0 \pm 0,1$ mm

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 1

En

2. Edition

PE 8 P 120 A 920/4 LS 7002 S RQV 250-1050 PA 547

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 5.81

company: Saab-Scania
DS 140

engine:
Komb.-Nr. 0 402 648 802

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke ab FD 141: 5,0-5,1 mm (4,95-5,15) bis FD 052: 4,4-4,5 mm (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0 \pm 0,1	18,3-18,5	0,6(0,9)			3,3 \pm 0,1
225	4,4-4,6	1,0-1,4	0,3(0,6)			(3,0-3,5) * *

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 10	100 225 340-400=2,0	min.5,9 4,4-4,6	200 500 800 1050	1,0-1,2 3,9-4,4 5,6-5,8 7,7
ca. 60	12,0 4,0 1350	1090-1100 1195-1225 0-1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 183,0-185,0 (180,0-188,0)	1090-1100*	LDA 1000	0,9 bar 176,0-184,0 (174,0-186,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-
			LDA 500	0 bar 137,0-141,0 (135,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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5.83

J21

J21

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 a 1

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P .. LS 7002 +RQV .. PA 547	0,90	0 0,35 0,23	13,0-13,1 11,3-11,4 12,8-12,9 11,9-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 920/4 LS 7003 RQ 750 PA 528
1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 5.81

company: Saab-Scania

engine: DS 14 41, DSI 14 42

Komb.-Nr. 0 402 648 803

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1 bis FD 052: 4,4 - 4,5 mm
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,8+0,1	18,7 - 18,9	0,6 (0,9)			3,3 \pm 0,1 (3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,8 4,0 850	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

750 - 755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
700	187,0-189,0 (184,0-192,0)	-		-	-	100	240,0-290,0 = 20,0 - 21,0 mm RW
				High idle speed Dispersion 4,0 (7,0)			

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 14,2 b

2. Edition

40

En

PE 8 P 120 A 920/4 LS 7003 RQ 900 PA 528

1-2-7-3-4-5-6-8 je 45 ° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 3.81
Saab-Scania
company: DS 14 41, DSI 14 42
engine:
Komb.-Nr. 0 402 648 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8 \pm 0,1	18,6-18,8	0,6 (0,9)			3,3 \pm 0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 10	rev/min 9	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
850	186,0-188,0 (183,0-191,0)	-	-	-	100	240,0-290,0 = 20,0-21,0 mm RW
				High idle speed Dispersion 4,0 (7,0)		

Checking values in brackets

5.83

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Test Specifications Fuel Injection Pumps ② and Governors

PE8P 120A 920/4 LS 7003 RQ 1050 PA 528
1-2-7-3-4-5-6-8 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 4.81

company: Saab-Scania

DS 14 41, DSI 14 42

engine:

Komb.-Nr. 0 402 648 805

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubin 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

ab FD 141: 3,0-5,1 Dis FD 052: 4,4-4,5 mm
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,8 $\pm 0,1$	19,9-20,1	0,6(0,9)			3,3 $\pm 0,1$ (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the seating edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,8 4,0 1150	1050-1055 1087-1102 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1050-1055 mm⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	8
1000	199,0-201,0 (196,0-204,0)	-	-	-	-	100	240,0-290,0 = 20,0-31,0 mm RM
				High idle speed Dispersion 4,0 (7,0)			

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

PE 6 P 120 A 720 RS 7004 RQ 750 PA 528

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 5.81

company SAAB-SCANIA

engine DS 11 43, 44, 45

DSI 11 42, 45

Komb.-Nr. 0 402 646 803

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,00-5,10

bis FD 052: 4,40-4,50

Port closing at prestroke (4,95-5,15) mm (from BDC)

(4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8+0,1	20,9 - 21,1	0,6(0,9)			3,3 ± 0,1 ** (3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 850	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: A 750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
700	209,0 - 211,0 (206,0 - 214,0)	-	-	-	100	240 - 290 = 20,0-21,0 mm RW

High idle speed

27,0-35,0

Dispersion 4,0 (7,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 11,0 v 2

2. Edition

En

PE 6 P 120 A 720 RS 7004

RQ 900 PA 528

supersedes 4.81

company: Saab-Scania

engine: DS 11 43, 44, 45

DSI 11 42, 45

Komb.-Nr. 0 402 646 804

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5 mm
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8±0,1	20,8 - 21,0	0,6(0,9)			3,3 ±0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in
Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 900-905 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
850	208,0-210,0 (205,0-213,0)	-	-	-	100	240,0-290,0 = 20,0-21,0 mm RW
			High idle speed Dispersion 4,0 (7,0)			

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7004 RQ 1050 PA 528

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes -

company Saab-Scania
engine DS 1143, DSI11 45
Komb.-Nr. 0 402 646 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\text{ab FD 141: } 5,0-5,1$ $\text{bis FD 052: } 4,4-4,5 \text{ mm}$
(4,95-5,15) (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,8±0,1	21,3 - 21,5	0,6(0,9)			3,3 ± 0,1 (3,0-3,5) ..

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 1150	1050-1055 1087-1102 0 - 1,0	-	-	-	-	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At 1050-1055 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1000	213,0 - 215,0 (210,0 - 218,0)	-		High idle speed 27,0 - 35,0 Dispersion 4,0 (7,0)	100	240 - 290 = 20,0 - 21,0 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 w
1. Edition

En

PE 6 P 120 A 720 RS 7007 RQV 200-1000 PA 539-2

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes -

company: Scania
engine: DSC 1101
LKW 112

Komb.-Nr. 0 402 646 812

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test-Jil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,5 - 4,6$
(4,45-4,65) mm (from BDC) = RW 6,0 - 8,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,7+0,1	21,0-21,2	0,7(1,0)			3,3 [±] 0,1
225	4,4-4,6	1,4-1,8	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in .

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0 mm.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1040	15,2-17,8	-	-	-	ca. 9	100 225 310-370 = 2,0	min. 5,9 4,4-4,6	150 430 720 1000	0,5-0,8 3,1-3,6 5,1-5,4 7,9
ca. 62	13,7 4,0 1300	1040-1050 1165-1195 0-1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 210,0-212,0 (207,0-215,0)	1040-1050 *	LDA 1000	0,9 bar 201,0-209,0 (198,0-212,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 164,0-168,0 (162,0-170,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

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K5

K5

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P..RS 7007 +RQV..PA539-2	0,42	0,90 0 0,30	14,0 - 14,1 14,7 - 14,8 11,8 - 11,9 12,4 - 12,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d

2. Edition

En

PE 8 P 120 A 920/4 LS 7008 RQV 200-950 PA 547-1

supersedes 3.83

company Scania

engine DSC 1401

Komb.-Nr. 0 402 648 807

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,5-4,6 \\ (4,45-4,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,2+0,1	20,1-20,3	0,7(1,0)			3,3±0,1
225	4,6-4,8	1,4-1,8	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 3,0 mm.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	990	15,2-17,8	-	-	-	ca. 9	100	min. 5,9	150	0,5-0,9
ca. 60	13,2	990-1000					225	4,4-4,6	420	3,0-3,5
	4,0	1115-1145					310-370 = 2,0		680	4,8-5,1
	1250	0-1,0				3a			950	7,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000*	LDA 950	0,9 bar 194,0-202,0 (193,0-205,0)	100	250,0-300,0 bei 20,0 - 21,0 mm RW	-	-
			LDA 500	0 bar 156,0-160,0 (154,0-162,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 8 P..LS 7008 +RQV..PA 547-1	0,35	0,90 0 0,24	13,6 - 13,7 14,2 - 14,3 11,5 - 11,6 12,1 - 12,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 VOG 22,6 a

1. Edition

En

PE 8 P 120 A 520/4 RS 7010 RQV 250-850 PA 686

1 - 4 - 6 - 2 - 5 - 3 - 7 - 8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values only apply to test nozzle-and-holder
assembly : 688 901 019 and fuel-injection test
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company Volgograd
8 DWT 330

engine: 243 kW

Komb.-Nr. 0 402 648 809

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $5,0-5,1$
(4,95-5,15) mm (from BDC) $RW = 9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	13,0+0,1	19,4-19,6	0,5(0,9)			
250	5,0-5,2	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	935	15,2-17,8	-	-	-	ca. 9	100	min. 6,6	250	1,1-1,3
ca. 61	12,0 4,0 1100	890-900 950-980 0-1,0				285-390	250 340-400 = 2,0	5,0-5,2	650 850	4,5-4,8 7,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 194,3-196,0 (191,0-199,0)	890-900*	LDA 500	0 bar 125,0-127,0 (122,0-130,0)	100	245,0-265,0 (241,0-269,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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K9

K9

D. Adjustment Test for Manifold Pressure Compensator

VOG 22,6 a

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8P..RS7010 + RQV..PA686	0,70		13,0 - 13,1
		0	10,0 - 10,1
		0,30	12,1 - 12,3
		0,16	10,6 - 11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 2, 3b 1

2.Edition

En

VA 3/100 H 1300 BR 52-1

0 460 303 085

supersedes **6-82**

company **Hanomag**

engine: **D 132-45 PS**

Pre-stroke setting **0.3 mm**
Setting of the pointer at a stroke of 1,12mm in relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,5-5,5 mm		
1.2 Supply pump pressure	1000	5,0-5,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	57,5-58,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		3,0
1.5 Start (mech.)	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1350	28,0-36,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	550-700 (520-730)	1000	1050-1200
	mm	Beginn	(4,2-5,8)	5,7-6,4 (5,4-6,7)
2.2 Supply pump	rev/min	100	1000	1300
	kp/cm ²	0,8-1,3 (0,6-1,5)	(4,8-5,7)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1390-1440 (1370-1460)	0	
		1350	(27,0-37,0)	
		1250	53,5-56,5 (52,5-57,5)	
		800	(57,0-59,0)	
		500	51,0-54,0 (50,0-55,0)	
	Stop	1300	0	
Idle stop	Full	340-390 (320-410)	0	
		300	(9,0-17,0)	
End stop	Start	150	mind. 65,0	
		500	max. 40,0	

8.83

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K11

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 6,5 mm (s.a.BMP) Dimension V = mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 2,3d 1

2.Edition

En

Testoil-ISO 4113

VA 3/100 H 1300 BR 52-3

0 460 303 097

supersedes 6-82
company: Hanomag
engine: D 131

Pre-stroke setting 0,3 mm
Setting of the pointer at a stroke of 1,12mm in relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,5-4,5 mm		
1.2 Supply pump pressure	900	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	48,5-49,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		3,0
1.5 Start (mech.)	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1350	28,5-36,5 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2.1 Timing device	rev/min	520-670 (490-700)	900	1000-1150
	mm	Beginn	(3,2-4,8)	5,7-6,4 (5,4-6,7)
2.2 Supply pump	rev/min	100	900	1300
	kp/cm ²	1,4-1,9 (1,2-2,1)	(4,7-5,6)	6,1-6,6 (5,9-6,8)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min.	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1390-1450 (1370-1470)	0	
		1350	(27,5-37,5)	
		1250	48,0-51,0 (47,0-52,0)	
		1100	(48,0-50,0)	
		500	44,5-47,5 (43,5-48,5)	
	Stop	1300	0	
Idle stop	Full	380-430 (360-450)	0	
		300	(9,0-17,0)	
End stop	Start	100	mind. 65,0	
		150		

8.83

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K13

KAB

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 5,5 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 2, 3d

3. Edition

En

VA 3/100 H 1200 BR 52-2

0 460 303 096

supersees 82

company Hanomag

engine: D 131 R1-32 PS

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm
Setting of the pointer at a stroke of 1,12 mm in relation
to outlet "A".

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	4, 3-5, 3 mm		
1.2 Supply pump pressure	900	5, 2-5, 7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	51, 0-52, 0 cm ³ /1000 strokes		2, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12, 0-18, 0 cm ³ /1000 strokes		3, 0
1.5 Start (mech.)	100	mind. 65, 0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	24, 0-32, 0 cm ³ /1000 strokes		

2. Test Specifications

2.1 Timing device	rev/min	450-600 (420-630)	900	1000-1150
	mm	Start	(4, 0-5, 6)	6, 7-7, 4 (6, 4-7, 7)
2.2 Supply pump	rev/min	100	900	1200
	kp/cm ²	1, 5-2, 0 (1, 3-2, 2)	(5, 0-5, 9)	6, 2-6, 7 (6, 0-6, 9)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1390 (1310-1410)	0	
		1300	(23, 0-33, 0)	
		1180	46, 0-49, 0 (45, 0-50, 0)	
		800	(50, 5-52, 5)	
		500	49, 5-52, 5 (48, 5-53, 5)	
	Stop		0	
Idle stop	Full	420-500 (400-520)	0	
		300	(11, 0-19, 0)	
End stop	Start	100	mind. 65, 0	
		500	mind. 25, 0	

8.83

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K15

145

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 1,5 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1d 5

2 Edition

En

Testoil-ISO 4113

VA 4/100 H 1300 CR 53
0 460 304 145

supersedes 6.82

company: Hanomag

engine: D 142 R 8/6

Pre-stroke setting 0.1 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1100	2,5-3,3 mm		
1.2 Supply pump pressure	1100	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	47,5-48,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1400	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	600-750(570-780)	1100	1150-1270
	mm	Start	(2,2-3,6)	3,4-4,1(3,1-4,4)
2.2 Supply pump	rev/min	200	1100	1300
	kp/cm ²	1,1-1,6(0,9-1,8)	(4,6-5,5)	5,3-5,8(5,1-6,0)
Overflow delivery	rev/min	500		1300
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1500-1600 (1480-1520)	0	
		1400	(35,0-45,0)	
		1300	46,0-49,0 (45,0-50,0)	
		1100	(47,0-49,0)	
		600	49,0-53,0 (48,0-54,0)	
	Stop	1300	0	
Idle stop	Full	500-580 (480-600)	0	
		350	(11,0-19,0)	
		100	mind. 75,0	

K17

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8.83

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension \bar{V} - mm Dimension \bar{V} - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1

2-Edition

En

Testoil-ISO 4113

VA 6/100 H 1300 CR 54-2
0 460 306 115

supersedes 6.82

company: Hanomag

engine: D 161 R-75 PS

Pre-stroke setting 0.3 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	1,6-2,4 mm		
1.2 Supply pump pressure	1000	4,6-5,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	50,5-51,5 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		
1.5 Start	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1400	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications				
Checking values in brackets				
2.1 Timing device	rev/min	620-770 (590-800)	1000	1020-1170
	mm	Start	(1,3-2,7)	2,5-3,2 (2,2-3,5)
2.2 Supply pump	rev/min	100	1000	1300
	kp/cm ²	0,8-1,3 (0,6-1,5)	(4,4-5,3)	5,6-6,1 (5,4-6,3)
Overflow delivery	rev/min	500		1300
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1450-1500 (1430-1520)	0	
		1400	(30,0-40,0)	
		1300	50,5-53,5 (49,5-54,5)	
		1100	(50,0-52,0)	
		500	48,5-51,5 (47,5-52,5)	
	Stop	1300	0	
Idle stop	Full	400-450 (380-470)	0	
		300	(11,0-19,0)	
		100	mind. 65,0	
End stop	Start	mind. 150		

8,83

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K19

K19

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV ⁻ - mm Dimension V ⁼ - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 q 8
2. Edition

VA 6/10 H 1150 CR 87-3
0 460 306 260

supersedes 2.83
company IHC
engine D 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	2,4-3,2 mm		
1.2 Supply pump pressure	700	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	700	69,5-70,5 cm ³ /1000 strokes		3,0
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	16,0-22,0 cm ³ /1000 strokes		3,0
1.5 Start	100	min. 70,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1200	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2.1 Timing device	rev/min mm	500 0,6-1,6(0,4-1,8)	700 (2,1-3,5)	1150 5,2-5,9(4,8-6,2)
2.2 Supply pump	rev/min kp/cm ²	200 2,1-2,6(1,9-2,8)	700 (4,7-5,6)	1150 6,6-7,1(6,4-7,3)
Overflow delivery	rev/min cm ³ /10 s			
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1300	0	
		1200	(34,0-46,0)	
		1150	70,0-73,0 (69,0-74,0)	
		700	(69,0-71,0)	
		500	66,0-70,0 (65,0-71,0)	
	Stop	1150	0	
Idle stop	Full	530-580	0	
		400	(14,0-24,0)	
	Start	100	min. 70,0	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 42 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 5^\circ$	Pump Dimension IV $\bar{=}$ 3,8 Dimension V $\bar{=}$ 24,65 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 1,9c 1

3. Edition

En

VA 4/90 H 1900 CR 157-1
0 460 394 017

superseded 6.82

company Fiat

engine: 237 AZ

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting $0,3 \text{ mm} \pm 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1500	5,1-6,1 mm		
1.2 Supply pump pressure	1500	6,0-6,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	---	--- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start (autom.)	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1950	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	400-550 (370-580)	1500	1650-1800
	mm	Beginn	(4,8-6,4)	6,1-6,8 (5,8-7,1)
2.2 Supply pump	rev/min	200	1500	1900
	kp/cm ²	1,1-1,6 (0,9-1,8)	(5,8-6,7)	7,1-7,6 (6,9-7,8)
Overflow delivery	rev/min	500		1900
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	2100-2220 (2080-2240)	0	
		1950	(15,0-25,0)	
		1800	31,5-34,5 (30,5-35,5)	
		1500	(32,5-34,5)	
		500	29,0-32,0 (28,0-33,0)	
		1900	0	
Idle stop	Full	440-520 (420-540)	0	
		300	(11,0-19,0)	
	Start	100	mind. 65,0	
End stop		200-300		

6.83

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K23

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = 24,6 mm

⑥

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 OPE 2,1c

2. Edition

En

VE 4/9 F 2200 L 12

0 460 494 001

superseded 5.83

company Opel

engine: TL 1755

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W-460V..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	2000	7,5-7,9 mm		
1.2 Supply pump pressure	2000	6,3-7,3 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1250	37,0-38,0 cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	6,0-10,0 cm ³ /1000 strokes		2,5(3,0)
1.5 Start	50	min. 45,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2420	11,0-17,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	2000	--		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,8-1,6(0,5-1,9)	1250 3,8-4,6(3,5-4,9)	2000 (7,0-8,4)	2200 7,8-8,6(7,5-8,9)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,7-3,7		2000 6,3-7,3	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111(40-126)			2200 55-111(40-126)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2620-2750 2500 2420 2230 1250 600	0 max. 6,0 (10,0-18,0) 30,0-32,5 (28,95-33,55) (35,2-39,8) 29,5-32,5 (28,0-34,0)	
switch-off	2200	0	
Idle stop	380-460 300	0 (4,0-12,0)	
2.4 Solenoid	max. cut-in voltage xxx 10 V test voltage xxx rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 4,8
A	2,6-7,6
G	10,4-15,6
Observations	
Clearance between idle position and stop for increased idling 0.5 - 1.0 mm	

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4.83

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/9 F 2200 L 27

0 460 494 008

supersedes 4.82

company Opel

engine: TL 1755

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	2000	7,4-7,8 mm		
1.2 Supply pump pressure	2000	6,2-6,8 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1250	36,0-37,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	6,0-10,0 cm ³ /1000 strokes		2,5
1.5 Start	~100	min. 50,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2420	13,0-19,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1250	--		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,6-1,6 (0,4-1,8)	1250 3,6-4,4 (3,3-4,7)	2000 (6,9-8,3)	2200 7,7-8,5 (7,4-8,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,0-3,6		2200 6,7-7,3	
Overflow delivery	n = rev/min cm ³ /100 s	500 55-138 (40-153)		2200 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2500 2420 2230 1250 600	max. 6,0 (12,0-20,0) 30,5-33,5 (29,7-34,3) (34,2-38,8) 31,5-34,5 (30,0-36,0)	
switch-off elect.	70-400	0	9
Idle stop	370-470 250	0 (4,0-12,0)	
End stop	110	min. 50	
2.4 Sole	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,7-1,9
SVS	4,6
A	2,6-7,6
B	11,4-15,6

Observations

Clearance between idle position
and stop for increased idling
0.5 - 1.0 mm.

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Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/12 F 1500 R 51-1

superseded 1.82

company: RVI-Renault

engine: 720 S

0 460 424 005

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,3-3,7 mm	0,8	
1.2 Supply pump pressure	1000	4,7-5,3 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	500	64,5-65,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	88,0-89,0 cm ³ /1000 strokes	0,8	4,0
1.4 Idle speed regulation	325	14,0-20,0 cm ³ /1000 strokes	0	3,5
1.5 Start	100	min. 100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1650	17,0-23,0 cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	750	1000	1500
LDA=0,8bar	mm	1,3-2,1 (1,0-2,4)	(2,8-4,1)	6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min	300		1500
LDA=0,8bar	bar (kgf/cm ²)	1,7-2,3		6,7-7,3
Overflow delivery	n = rev/min	500		1500
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1700	max. 3,0	0,8
	1650	(15,0-25,0)	0,8
	1600	53,0-61,0 (52,0-62,0)	0,8
	1500	84,5-87,5 (83,0-89,0)	0,8
	1000	(85,5-91,5)	0,8
	750	84,5-87,5 (83,0-89,0)	0,8
	* 600	75,0-76,0 (72,5-78,5)	0,4
	500	(61,2-68,8)	0
switch-off	1500	0	
Idle stop	400	max. 3,0	
	325	(12,0-22,0)	
End stop	200	min. 90,0	
	350	max. 90,0	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 6,0
A XK	20,1-22,1
B XL	12,6-16,4

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)
24V Pulling electro-
magnet

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/9 F 2300 R 54

0 460 494 044

supersedes 1.82

company: Fiat

engine: X8/28

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-

mm

see VDT-W-460/..

Test to ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3-4,7 mm		
1.2 Supply pump pressure	1500	5,1-5,7 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	34,2-35,2 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	8,0-12,0 cm ³ /1000 strokes		2,5
1.5 Start	100	min. 48 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2400	16,0-22,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	800 1,7-2,5 (1,4-2,8)	1500 (3,8-5,2)	2300 7,2-8,0 (6,9-8,3)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,5-3,1		2300 6,9-7,5
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2300 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2500	6,0-12,0 (5,0-13,0)	
	2400	(15,0-23,0)	
	2250	28,0-30,0 (26,7-31,3)	
	1500	(32,4-37,0)	
	600	23,5-26,5 (22,0-28,0)	
switch-off	2300	0	
Idle stop	350	(6,0-14,0)	
	400	max. 4,0	
	540	0	
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V	
	max. voltage	xxx rated voltage 12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,7-1,9
SVS	max. 3,5
A X _K	20,1-22,1
B X _L	9,5-13,3

Observations

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 5,6 h1

1. Edition

En

VE 6/11 F 1500 R 55-7

0 460 416 031

supersedes-

company: MAN

engine: M 0226 MF

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,6 mm $\pm 0,02(0,04)$

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	6,0-6,4 mm		
1.2 Supply pump pressure	1000	5,7-6,3 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1000	63,5-64,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	8,0-12,0 cm ³ /1000 strokes		2,5
1.5 Start	100	min. 50,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1600	24,0-30,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 3,7-4,5(3,4-4,8)	1000 (5,6-6,9)	1400 8,9-9,7(8,6-10,0)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 4,2-4,8		1500 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110(40-125)		1500 55-110(40-125)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1680	max. 8,0	
	1600	(22,5-31,5)	
	1500	69,25-71,75 (67,8-73,2)	
	1000	(61,3-66,7)	
	600	45,75-49,25 (44,1-50,9)	
switch-off	1500	0	
Idle stop	390-460 300	0 (5,5-14,5)	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-5,9
MS	1,2-1,4
SVS	max. 4,7
*PH	1,8-2,4
AKK	25,0-27,0
EXL	11,8-15,2

Observations

*operating
stroke (KSB)

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9.83

L5

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VMA 3,6 a 1

En

2. Edition

VE 6/11 F 1900 L 63-1

O 460 416 029

supersedes 1.83

company: VM-Motori

engine: HR 6 H

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,8-4,2 mm	0,75	
1.2 Supply pump pressure	1500	4,9-5,5 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	42,3-43,3 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	61,0-62,0 cm ³ /1000 strokes	0,75	3,0
1.4 Idle speed regulation	300	20,0-24,0 cm ³ /1000 strokes	0,75	3,0
1.5 Start	≤ 100	min. 40,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2000	44,0-50,0 cm ³ /1000 strokes	0	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	1000	1500	1850
LDA=0,75 bar	mm	0,9-1,7 (0,6-2,0)	(3,3-4,7)	5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min	600	1850	
LDA=0,75 bar	bar (kgf/cm ²)	2,0-2,6	6,0-6,6	
Overflow delivery	n = rev/min	600	1900	
	cm ³ /10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2140	1,0-9,0 (0,5-9,5)	0,75
	2000	(42,5-51,5)	0,75
	1850	56,7-59,3 (55,3-60,7)	0,75
	1500	(58,8-64,2)	0,75
	*600	46,2-47,2 (43,3-50,1)	0,3
	600	(39,4-46,2)	0
switch-off	1900	0	
Idle stop	350	(17,5-26,5)	
	400	7,5-12,5 (5,5-14,5)	
	450	max. 3	
	400	min. 49	
	500	max. 44	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	6,3-6,6
MS	0,9-1,1
SVS	max. 4,3
**PB	1,8-2,4
A XK	20,2-22,2
B XL	13,0-16,4

Observations

Manifold-pressure
compensator stroke
= 4,0 mm.*Correction at the
adjusting nut.(46)

*operating

stroke (KSB)

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 Ope 1,6 d

3. Edition

En

VE 4/9 F 2300 R 82

O 460 494 071

supersedes 12.82

company: Opel

engine: 2033-1,6 l

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

Testoil-SC 413

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm		
1.2 Supply pump pressure	1500	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	28,5-29,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	6,0-10,0 cm ³ /1000 strokes		2,5
1.5 Start	100	min. 40,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2640	17,0-23,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1200 1,4-2,2(1,1-2,5)	1500 (2,6-4,0)	2300 6,8-7,6(6,5-7,9)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,4-3,0		2300 7,3-7,9
Overflow delivery	n = rev/min cm ³ /100 s	500 55-138(40-153)		2300 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	3000 2800 2640 2300 1500 600	max. 5,0 7,0-13,0 (6,0-14,0) (16,0-24,0) 27,4-29,4 (26,1-30,7) (26,7-31,3) 23,2-26,2 (21,7-27,7)	
switch-off	2300	0	
Idle stop	1200 650 450	0 2,0-7,0 (0,5-8,5) (4,0-12,0)	
End stop	400 500	min. 30 max. 28	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	max. 2,0
* FH	1,8-2,4
AXK	24,2-26,2
EXL	9,9-13,2

Observations

* *operating
stroke (KSB)

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 Ope 1,6 d 1

1.Edition

En

VE 4/9 F 2300 R 82-1

0 460 494 114

supersedes -

company: Opel

engine: 2033-1,6 L

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm		
1.2 Supply pump pressure	1500	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	28,5-29,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	6,0-10,0 cm ³ /1000 strokes		2,5
1.5 Start	100	min. 40,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2640	17,0-23,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1200 1,4-2,2(1,1-2,5)	1500 (2,6-4,0)	2300 6,8-7,6(6,5-7,9)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,4-3,0		2300 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		2300 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	3. Dimensions for assembly and adjustment mm
End stop	3000 2800 2640 2300 1500 600	max. 5,0 7,0-13,0 (6,0-14,0) (16,0-24,0) 27,4-29,4 (26,1-30,7) (26,7-31,3) 23,2-26,2 (21,7-27,7)		K 3,2-3,4 KF 5,7-5,9 MS 1,2-1,4 SVS max. 2,0 * FH 1,8-2,4
switch-off	2300	0		A XK 24,2-26,2 B XL 9,9-13,2
Idle stop	1200 650 450	0 2,0-7,0 (0,5-8,5) (4,0-12,0)		Observations *operating stroke (KSB)
End stop	400 500	min. 30 max. 28		
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.			

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Test Specifications

Distributor-type

Fuel-injection Pumps

VE 5/11 F 2150 L 101
0 460 415 003

supersedes
company: VM-Cento
engine: HR 588 HT

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-450/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1800	5,9-6,3 mm	0,8	
1.2 Sup. pump pressure	1800	6,3-6,9 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	600	33,0-36,0 cm ³ /1000 strokes	0	3,5
Full-load delivery with charge-air pressure	2000	38,0-39,0 cm ³ /1000 strokes	0,8	
1.4 Idle speed regulation	400	9,0-13,0 cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 50,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2400	11,5-17,5 cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	1000 1,6-2,4(1,3-2,7)	1500 4,5-5,1(4,1-5,5)	1800 (5,4-6,8)	2150 7,5-8,1(7,1-8,5)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm ²)	600 2,3-2,9			2150 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)			2150 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	3,0-9,0 (1,5-10,5)	0,8
	2400	(10,0-19,0)	0,8
	2150	35,7-38,3 (32,5-41,5)	0,8
	2000	(35,8-41,2)	0,8
	1500	42,7-45,3 (40,8-46,2)	0,8
	*700	40,5-43,5 (38,6-45,4)	0,3
	600	(31,1-37,9)	0
switch-off	2150	0	
Idle stop	800 400	max. 3,0 (6,5-15,5)	
2.4 Solenoid	Max. cut-in voltage xxx min. 10,0 V test voltage rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,9-6,1
MS	0,9-1,1
SVS	3,0
*FH	1,8-2,4
AXK	20,2-22,2
XL	9,7-13,1

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)
*operating
stroke (KSB)

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 IHC 6,6i

2. Edition

En

VE 6/12 F 1100 R 102

0 460 426 025

DHK 1 688 901 020

Overflow temperature 45° C

supersedes -

company: IHC

engine: DT 402

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	600	3,2-3,6 mm	0,75	3,5
1.2 Supply pump pressure	600	5,0-5,6 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	81,0-83,0 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	800	99,0-100,0 cm ³ /1000 strokes	0,75	
1.4 Idle speed regulation	375	20,0-26,0 cm ³ /1000 strokes	0	
1.5 Start	100	min. 95,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1200	33,0-39,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,75 bar	n = rev/min mm	400 1,3-2,1(1,0-2,4)	600 (2,7-4,1)	700 3,6-4,4(3,3-4,7)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm ²)	400 3,9-4,5		1100 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-125(40-140)		1100 55-125(40-140)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1220-1280 1200 1080 800 600 * 600	0 (31,0-41,0) 96,0-99,0 (94,5-100,5) (96,5-102,5) 88,5-90,5 (85,7-93,3) (78,2-85,8)	0,75 0,75 0,75 0,75 0,2 0
switch-off	1100	0	
Idle stop	420-500 375	0 (18,0-28,0)	
End stop	200 440	min. 95 max. 85	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.		

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,6-5,8
MS	1,5-1,7
SVS	max. 6,0
AK	20,2-22,2
AL	10,2-13,5

Observations

* Manifold-pressure compensator stroke = 4,0 mm.
Correction at the adjusting nut.(46)

L10

L10

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9.83

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/11 F 1900 L 108

0 460 414 004

supercedes-

company: Volvo Penta

engine: TMD 8199 - 90 PS-"B"

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1700	4,8-5,2 mm		
1.2 Supply pump pressure	1700	6,4-7,0 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	54,0-55,0 cm ³ /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	325	26,0-30,0 cm ³ /1000 strokes		3,5
1.5 Start	~ 100	min. 60 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2000	27,0-32,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-			

2. Test Specifications				
checking values in brackets ()				
2.1 Timing device	n = rev/min mm	1000 1,7-2,5(1,4-2,8)	1700 (4,3-5,7)	1870 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,7-3,3		1870 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		1900 55-138(40-153)

2.3 Fuel deliveries				3. Dimensions	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	for assembly and adjustment mm
End stop	2180 2100 2000 1870 1500 1000 600	max. 1,0 min. 2,0 (24,5-33,5) 49,5-52,5 (48,4-53,6) (51,9-57,1) 54,5-57,5 (53,4-58,6) 45,0-49,0 (43,6-50,4)		K KF MS SVS	- 5,7-5,9 1,2-1,4 3,4
switch-off				A B	
Idle stop	325 400 500	min. 4,0 max. 1,0 (23,5-32,5)		Observations	
End stop	350 500	min. 55 max. 50		Pushing electro-magnet	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.				

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 Volvo 3,0p

1. Edition

En

VE 4/11 F 1625 L 110

0 460 414 005

supersedes-

company: Volvo-Penta

engine: TAMD 30 A-C

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,6-3,0 mm		
1.2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	62,0-63,0 cm ³ /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	325	26,0-30,0 cm ³ /1000 strokes		3,5
1.5 Start	100	min. 70 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2000	6,0-14,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 0,5-1,3(0,2-1,6)	1500 (2,1-3,5)	1625 3,0-3,6(2,6-4,0)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,2-3,8		1625 6,6-7,2
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		1625 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2100 2000 1800 1625 1500 1000 600	max. 2,0 (5,5-14,5) 46,5-52,5 (45,0-54,0) 58,5-61,5 (57,3-62,7) (59,3-65,2) 61,5-63,5 (59,3-65,2) 52,5-56,5 (51,1-57,9)	
switch-off			
Idle stop	325 450 500	(23,5-32,5) max. 3,0 max. 1,0	
End stop	350 450	min. 70 max. 65	
2.4 Solenoid	max. cut-in voltage XX min. 10V XXXXXXX rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,2-1,4
SVS	max. 5
A	
B	

Observations

Pushing electro-magnet

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7.83

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/11 F 1900 L 111

0 460 414 006

supersedes -

company: Volvo-Penta

engine: TAMD 8199 B - 110 PS

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,6-3,0 mm		
1.2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1000	71,5-72,5 cm ³ /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	325	26,0-30,0 cm ³ /1000 strokes		3,5
1.5 Start	100	min. 80 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2100	19,0-27,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications			
checking values in brackets ()			
2.1 Timing device	n = rev/min mm	1000 0,5-1,3(0,2-1,6)	1500 (2,1-3,5)
			1850 3,6-4,4(3,3-4,7)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,2-3,8	1850 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)	1900 55-138(40-153)

2.3 Fuel deliveries				3. Dimensions	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	for assembly and adjustment mm
End stop	2200 2100 2000 1850 1000 600	max. 7,0 (18,5-27,5) 42,0-48,0 (40,5-49,5) 70,5-73,5 (69,4-74,6) (69,4-74,6) 64,5-68,5 (63,1-69,9)		K KF MS SVS	- 5,8 1,3 3,4
switch-off				A B	
Idle stop	325 450	max. 3,0 (23,5-32,5)		Observations	
End stop	350 450	min. 70 max. 70			
2.4 Solenoid	max. cut-in voltage xxx min. 10 V test voltage xxx rated voltage 12V.				

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Test Specifications

Distributor-type

Fuel-injection Pumps

VE 6/12 F 1400 R 120-1
0 460 426 030

supersedes -
company: MAN
engine: D0226 MC

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,5-3,9 mm	0,8	
1.2 Supply pump pressure	800	5,1-5,7 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	630	85,5-86,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	112,0-113,0 cm ³ /1000 strokes	0,8	4,0
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes	0	3,5
1.5 Start	100	min. 70,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1440	92,0-100,0 cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,2-2,0(0,9-2,3)	800 (3,0-4,4)	1100 4,9-5,7(4,6-6,0)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm ²)	500 3,8-4,4		1100 6,1-6,7
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1650	max. 1,0	0,8
	1550	26,0-34,0 (25,0-35,0)	0,8
	1440	(91,0-101,0)	0,8
	1400	108,0-112,0(107,0-113,0)	0,8
	1000	(109,5-115,5)	0,8
	800	110,0-114,0(109,0-115,0)	0,8
	630	112,0-116,0(110,3-117,7)	0,8
	*630	106,5-107,5(103,3-110,7)	0,4
	630	(82,3-89,7)	0
switch-off			
Idle stop	300	(8,0-18,0)	
	350	max. 5,0	
	400	max. 1,0	
End stop	230	min. 100	
	400	max. 100	
2.4 Solenoid	max. cut-in voltage xxx 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,0-1,2
SVS	
JK	25,0-27,0
XL	13,5-16,8
Observations	
Pulling electro-magnet	

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 MAN 5,6h

1. Edition

En

VE 6/12 F 1400 R 120-2
0 460 426 031

supersedes
company MAN
engine: D0225 MC

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,5-3,9 mm	0,8	
1.2 Supply pump pressure	800	5,1-5,7 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	630	85,5-86,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	112,0-113,0 cm ³ /1000 strokes	0,8	4,0
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes	0	3,5
1.5 Start	100	min. 70,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1440	92,0-100,0 cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	500	800	1100
LDA = 0,8 bar	mm	1,2-2,0 (0,9-2,3)	(3,0-4,4)	4,9-5,7 (4,6-6,0)
2.2 Supply pump	n = rev/min	500		1100
LDA = 0,8 bar	bar (kgf/cm ²)	3,8-4,4		6,1-6,7
Overflow delivery	n = rev/min	500		1400
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery - cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1650	max. 1,0	0,8
	1550	26,0-34,0 (25,0-35,0)	0,8
	1440	(91,0-101,0)	0,8
	1400	108,0-112,0 (107,0-113,0)	0,8
	1000	(109,5-115,5)	0,8
	800	110,0-114,0 (109,0-115,0)	0,8
	630	112,0-116,0 (110,3-117,7)	0,8
	* 630	106,5-107,5 (103,3-110,7)	0,4
	630	(82,3-89,7)	0
switch-off			
Idle stop	300	(8,0-18,0)	
	350	max. 5,0	
	400	max. 1,0	
End stop	230	min. 100	
	400	max. 100	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,0-1,2
SVS	
XK	25,0-27,0
ML	13,5-16,8

Observations

Pulling electro-magnet

2.4 Solenoid	max. cut-in voltage xxx 20 V
	max. max. max. rated voltage 12V.

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⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 FIA 1,7 h

2. Edition

En

VE 4/10 F 2050 R 124

0 460 404 031

 superseded: 1.83
 company: Fiat
 engine: 8144-81

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,3-5,7 mm	0,75	
1.2 Supply pump pressure	1500	6,1-6,7 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	43,5-44,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	61,5-62,5 cm ³ /1000 strokes	0,75	3,0
1.4 Idle speed regulation	350	12,5-16,5 cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 60 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2130	40,0-46,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	600 (0 bar)	1500 (0,75 bar)	2050 (0,75 bar)
	mm	0,9-1,7 (0,6-2,0)	(4,8-6,2)	7,4-8,2 (7,1-8,5)
2.2 Supply pump	n = rev/min	400 (0 bar)	600 (0 bar)	2050 (0,75 bar)
	bar (kgf/cm ²)	3,4-4,0	4,0-4,6	7,4-8,0
Overflow delivery	n = rev/min	600		2050
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2400	max. 1,5	0,75
	2300	max. 15,0	0,75
	2130	(38,5-47,5)	0,75
	2030	53,1-56,1 (51,9-57,3)	0,75
	1500	(59,3-64,7)	0,75
	*800	53,5-54,5 (50,6-57,4)	0,2
	600	(40,6-47,4)	0
switch-off	2050	0	
Idle stop	350	(10,0-19,0)	
	450	max. 3,5	
	500	max. 2,0	
End stop	350	min. 55	
	450	max. 55	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V XXXXXXXXXX rated voltage 12V. rest voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,2-1,4
SVS	3,2
A XK	25,0-27,0
B XL	9,8-13,1

Observations

*Manifold-pressure
compensator stroke
= 3,8 mm
Correction at the
adjusting nut (46).

9.83

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L16

L16

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 2,0 i 1

1. Edition

En

VE 5/10 F 2250 L 133

0 460 405 031

supersedes

company: VWV

engine: 153 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm ²)	0,75 bar	
1.3 Full-load delivery without charge-air pressure	500	21,5-22,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5 cm ³ /1000 strokes	0,75 bar	2,5
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes	0	2,0
1.5 Start	100	min. 50,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm ³ /1000 strokes	0,75 bar	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA: 0,75 bar	n = rev/min mm	850 1,1-1,9 (0,8-2,2)	1500 (2,6-4,0)	2250 5,4-6,2 (5,1-6,5)
2.2 Supply pump LDA: 0,75 bar	n = rev/min bar (kgf/cm ²)	500 3,2-3,8		2250 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2700 2525 2250 1500 * 850 500	max. 3,0 (8,0-16,0) 37,0-39,0 (35,8-40,2) (41,8-46,2) 32,5-33,5 (30,8-35,2) (19,0-25,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0
switch-off elektr.	400	0	
Idle stop	375 400 ** 1125	(4,0-12,0) max. 3,0 19,5-23,5	
End stop	400 500	min. 18,0 max. 25,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	4,2
A	
B	

Observations

Adjust TAS only at full
LDA pressure of 0.75 bar.
Adjust EGR with gauge.
Manifold-pressure com-
pensator stroke = 3,6mm
Correction at the adju-
sting nut. (46).

2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.
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7.83

L17

L17

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 2,0 i

1. Edition

En

VE 5/10 F 2250 L 133-1

O 460 405 029

supersedes-

company/VW

engine: 153 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm ²)	0,75 bar	
1.3 Full-load delivery without charge-air pressure	500	21,5-22,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5 cm ³ /1000 strokes	0,75 bar	2,5
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes	0	2,0
1.5 Start	100	min. 50,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm ³ /1000 strokes	0,75 bar	
1.7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA=0,75bar	n = rev/min mm	850 1,1-1,9(0,8-2,2)	1500 (2,6-4,0)	2250 5,4-6,2(5,1-6,5)
2.2 Supply pump LDA=0,75bar	n = rev/min bar (kgf/cm ²)	500 3,2-3,8		2250 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries				3. Dimensions <small>for assembly and adjustment</small>	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	mm
End stop	2700	max. 3,0	0,75 bar	K	-
	2525	(8,0-16,0)	0,75 bar	KF	5,7-6,0
	2250	37,0-39,0 (35,8-40,2)	0,75 bar	MS	1,7-1,9
	1500	(41,8-46,2)	0,75 bar	SVS	4,2
	* 800	32,5-33,5 (30,8-35,2)	0,3 bar		
	500	(19,0-25,0)	0		
switch-off mech. elektr.	2250	0		A	
	400	0		B	
Idle stop	375	(4,0-12,0)		Observations Adjust TAS only at full LDA pressure of 0.75 bar Manifold-pressure compensator stroke = 3,6mm Correction at the adjusting nut (46).	
End stop	450	max. 3,0			
	400	min. 18,0			
	500	max. 25,0			
2.4 Solenoid	max. cut-in voltage XXXX min. 10 V test voltage XXXX rated voltage 12V.				

L18

L18

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7.83

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 V 5

1. Edition

En

VE 4/9 F 2250 R 134-1
0 460 494 134

supersedes -
company: VWV
engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460V..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,3 - 3,7 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm ²)	0,75 bar	
1.3 Full-load delivery without charge-air pressure	600	22,5 - 23,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	42,5 - 43,5 cm ³ /1000 strokes	0,75 bar	2,5
1.4 Idle speed regulation	450	6,0 - 10,0 cm ³ /1000 strokes	0	2,0
1.5 Start	100	min. 35,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm ³ /1000 strokes	0,75 bar	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA = 0,75bar	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8(5,7-7,1)
2.2 Supply pump LDA = 0,75bar	n = rev/min bar (kgf/cm ²)	600 3,3-3,9		2250 7,4-8,0
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750 2525 2250 1500 1000 600	max. 3,0 (8,0-16,0) 38,0-40,0 (36,8-41,2) (40,8-45,2) 32,5-33,5 (30,8-35,2) (20,0-26,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0
switch-off mech. elektr.	2250 400	0 0	
Idle stop	450 1200	(4,0-12,0) max. 9,0	
End stop	400 500	min. 21,0 max. 29,0	
2.4 Solenoid	max. cut-in voltage XXX min. 10,0 V xxxxxxxxrated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,2-1,4
SVS	5,7
A	
B	
Observations	
* Manifold-pressure compensator stroke = 4,0 mm.	
Correction at the adjusting nut.(46)	

L19

L19

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 V 6

1. Edition

En

VE 4/9 F 2250 R 134-2

0 460 494 135

supersedes

company: VWV

engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,3 - 3,7 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5 - 23,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	42,5 - 43,5 cm ³ /1000 strokes	0,75	2,5
1.4 Idle speed regulation	475	6,0 - 10,0 cm ³ /1000 strokes	0	2,0
1.5 Start	100	min. 35,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8 (5,7-7,1)
2.2 Supply pump LDA = 0,75bar	n = rev/min bar (kgf/cm ²)	600 3,3-3,9		2250 7,4-8,0
Overflow delivery LDA = 0,75bar	n = rev/min cm ³ /10 s	600 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750 2525 2250 1500 1000 600	max. 3,0 (8,0-16,0) 38,0-40,0 (36,8-41,2) (40,8-45,2) 32,5-33,5 (30,8-35,2) (20,0-26,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0
* switch-off elect.	400	0	
Idle stop	475 1200	(4,0-12,0) max. 4,0	
End stop	400 500	min. 21,0 max. 29,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,2-1,4
SVS	3,2
A	
B	

Observations

Manifold-pressure

* compensator stroke

= 4,0 mm.

Correction at the
adjusting nut. (46)

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L20

L20

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 W 1

1. Edition

En

VE 4/9 F 2400 R 136

0 460 494 130

supersedes -

company: VWV

engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-

mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,4 - 2,8 mm		
1.2 Supply pump pressure	1500	4,9 - 5,5 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	31,5 - 32,5 cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	-	cm³/1000 strokes		
1.4 Idle speed regulation	475	6,0 - 10,0 cm³/1000 strokes		2,0
1.5 Start	100	min. 35,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0 - 17,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 0,6-1,4(0,3-1,7)	1500 (1,9-3,3)	2400 5,8-6,6(5,5-6,9)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4		2400 7,0-7,6
Overflow delivery	n = rev/min cm³/10 s	600 55-138(40-153)		2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 27,0-29,0 (25,8-30,2) (29,8-34,2) 19,5-22,5 (18,0-24,0)	
switch-off elect.	400	0	
Idle stop	475 650 1200	(4,0-12,0) max. 6,0 max. 5,0	
End stop	400 500	min. 16,0 max. 21,5	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.		

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	3,4
*FH	1,8-2,4
A	
B	

Observations

*operating
stroke (KSB)

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 2,0 i 3

1. Edition

En

VE 5/10 F 2400 L 137

0 460 405 030

supersedes -

company: VWV

engine: 153

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes		2,0
1.5 Start	100	min. 50,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2800 2650 2400 1400 750	max. 3,0 (5,0-13,0) 29,5-31,5 (28,3-32,7) (33,3-37,7) 24,5-27,5 (23,0-29,0)	
switch-off mech.	2400	0	
elektr.	400	0	
Idle stop	375 450	(4,0-12,0) max. 3,0	
End stop	400 500	min. 16,0 max. 23,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V xxxxxxxx rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	2,8
A	
B	

Observations

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L22

L22

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 2,0 i 2

1. Edition

En

VE 5/10 F 2400 L 137-1

0 460 405 032

supersedes

company:

engine: VW

153

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes		2,0
1.5 Start	100	min. 50,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8 -3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2800 2650 2400 1400 750	max. 3,0 (5,0-13,0) 29,5-31,5 (28,3-32,7) (33,3-37,7) 24,5-27,5 (23,0-29,0)	
switch-off mech. elektr.	2400 400	0 0	
Idle stop	375 450	(4,0-12,0) max. 3,0	
End stop	400 500	min. 16,0 max. 23,0	
2.4 Solenoid	max. cut-in voltage test voltage	xxx min. 10,0 V xxxxxxx rated voltage 12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	2,8
A	
B	

Observations

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